

**Application For  
Certificate of Public Convenience and  
Necessity**

**And**

**Utility Permit Application  
[Part 2]**

**Pleasant Prairie-Zion Energy Center  
Project**

**PSCW Docket No. 137-CE-161**

**October 2011**





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**Pleasant Prairie-Zion Energy Center Project**  
**List of Acronyms and Abbreviations**

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Joint Application for PSCW Certificate of Public Convenience and Necessity  
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ATC	American Transmission Company
BMPs	Best Management Practices
CPCN	Certificate of Public Convenience and Necessity
CCVT	coupling capacitor voltage transformer
CTH	County Trunk Highway
EHS	extra-high strength
EMF	electromagnetic field
FERC	Federal Energy Regulatory Commission
ft	feet
IDOT	Illinois Department of Transportation
kA	kilo ampere
kcmil	kilo circular mils
kV	kilovolt
mG	milligauss
MISO	Midwest Independent Transmission System Operator, Inc.
mm <sup>2</sup>	millimeters squared
MW	megawatt
MWh	megawatt-hour
MVA	megavolt amperes
MVP	Multi-Value Project
NAIP	National Agriculture Imagery Program
NERC	North American Electric Reliability Corporation
OPGW	optical ground wire
PSCW	Public Service Commission of Wisconsin (Commission)
p.u.	per unit
RMS	root mean square
ROW	right-of-way
SEWRPC	Southeastern Wisconsin Regional Planning Commission
STH	State Trunk Highway
TSR	transmission service request

**Pleasant Prairie-Zion Energy Center Project**  
**List of Acronyms and Abbreviations**

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USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WDNR	Wisconsin Department of Natural Resources (Department)
WHS	Wisconsin Historical Society
WisDOT	Wisconsin Department of Transportation

# Pleasant Prairie-Zion Energy Center Project

## Introduction And Overview

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Joint Application for PSCW Certificate of Public Convenience and Necessity  
WDNR Utility Permit Application (Part 2)

### A. INTRODUCTION

American Transmission Company LLC and ATC Management Inc., its corporate manager, known collectively as American Transmission Company (ATC), own and operate transmission facilities and transact business as a transmission company with the sole purpose of planning, constructing, operating, and maintaining the transmission facilities that it owns. ATC is obligated to provide adequate and reliable energy transmission service and facilities that meet the needs of all transmission users in the area it serves and that support effective competition in energy markets without favoring any market participant.

Application for Certificate of Public Convenience and Necessity: In order to meet this obligation, pursuant to the requirements of *Wis. Stat.* §§ 1.11, 1.12, 196.025, 196.49 and 196.491 *Wis. Adm. Code* chs. PSC 4, and 112, ATC hereby applies for a Certificate of Public Convenience and Necessity (CPCN) together with any other authorization necessary, to construct 5.3 to 5.8 miles (depending on the route ordered) of new 345 kV primarily single-circuit transmission line, and related facilities for a project generally known as the Pleasant Prairie-Zion Energy Center Project (Project), as set forth in further detail below.

Utility Permit Application (Part 2): Through this Application, pursuant to *Wis. Stat.* ch. 283 and §§ 30.025(1s), 30.123 and 281.36, and *Wis. Adm. Code* chs. NR 103, 216, 299, and 320, ATC hereby applies to the Wisconsin Department of Natural Resources (WDNR or Department) for the permits and authorizations necessary to construct the proposed facilities.

This Joint Application has been prepared in accordance with the PSCW and WDNR *Applications Filing Requirements for Electric Transmission Lines and Substations*, Version 18, Part 2.00.

### B. PROJECT DESCRIPTION

The project proposed in this Joint Application is the construction of 5.3 to 5.8 miles (depending on the route ordered) of new 345 kV transmission line (designated by ATC as PLPL41) from the Pleasant Prairie (PLP) Switchyard (located at Wisconsin Electric Power Company's Pleasant Prairie Power Plant in the village of Pleasant Prairie, Kenosha County, Wisconsin) to the Zion Energy Center (ZEC) Substation (located in the city of Zion, Lake County, Illinois) primarily on single-circuit steel monopole structures (with the exception of the first three spans heading east from PLP which will be double-circuit).

## Pleasant Prairie-Zion Energy Center Project Introduction And Overview

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Joint Application for PSCW Certificate of Public Convenience and Necessity  
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The PLP Switchyard is a joint-use switchyard owned by Wisconsin Electric Power Company. ATC proposes to install the following equipment at the PLP Switchyard: a circuit breaker, two manual equipment disconnect switches, one motor-operated line disconnect switch, four 345 kV capacitor-coupled voltage transformers (CCVTs), one line trap, three line surge arresters and one dead-end structure.

The ZEC Substation is owned and operated by Commonwealth Edison (ComEd). ATC and ComEd have agreed to segment the existing bus 3 to create a new bus section 4 and add a new line position by installing a new live-tank 345 kV circuit breaker and associated disconnect switches and connections.

In Wisconsin, ATC's Project application contains two alternate routes in Wisconsin for consideration, as depicted on the map shown in Appendix A, Figure 1. Each of the alternatives primarily follows the highest priority statutory corridors (*Wis. Stat. 1.12 (6)*) in Wisconsin. All of the alternate routes have possible suitable wetland habitats which may require construction protection protocols. The cost is comparable for each alternative route (\$28,487,000 to \$29,645,100, Wisconsin and Illinois combined).

Alternate Routes 1 and 3 (5.3 miles total, 3.5 miles in WI) primarily parallels an existing railroad and transmission line right-of-way (ROW) and are comprised of Segments 1, 2a, 2b, and 2c in Wisconsin, and Segments 3a and 3b in Illinois. Alternate Route 1 has the following attributes: good access for construction and maintenance; affects the least number of landowners (12 in Wisconsin - 17 in total); requires more tree clearing than Alternate Route 2; and matting will be required during construction on select segments.

Alternate Route 2 (5.8 miles total, 4.1 miles in WI) primarily parallels Green Bay Road [also known as State Trunk Highway (STH) 31] ROW. South of County Trunk Highway (CTH) ML the new line will head west approximately 1100 feet to a property line, turn south and stay along property lines approximately 0.5 mile to the ZEC in Illinois. Alternate Route 2 is comprised of Segments 1, 4a, 4b, 4c, 4d, and 4e in Wisconsin and Segment 5a and 5b in Illinois. It has the following attributes: requires less tree clearing than the Alternate Route 1; provides excellent access to the line for construction and maintenance; avoids the planned Illinois State Highway 131 road widening project in Illinois; and affects the largest number of landowners (17 in Wisconsin - 22 in total).

## **Pleasant Prairie-Zion Energy Center Project Introduction And Overview**

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Joint Application for PSCW Certificate of Public Convenience and Necessity  
WDNR Utility Permit Application (Part 2)

Additional detail and supporting information for the proposed project is provided in the attached Technical Support Document (TSD). The TSD follows the format and guidelines from the Commission's "Information Requirements for Applications to Construct Electric Transmission Lines and Substations," (Part 2.00), Version 18. Detailed facilities information is provided in Section 2.1 of the TSD.

### **C. PURPOSE AND NECESSITY**

The Wisconsin-Illinois transmission interface has experienced system congestion for a number of years. ATC's economic analyses forecast the persistence of congestion if transmission system upgrades are not made.

Congestion within the Southeast Wisconsin to Northeast Illinois transmission interface is a driving factor behind uneconomic dispatch of generation, primarily in the Southeast Wisconsin region. Benefits accrued through relief of this congestion and the subsequent benefits to generation on the northern end of the congested corridor are referred to as economic benefits in the Planning Analysis located in Appendix C, Exhibit 1.

The studies determined that the Project would provide significant support to the regional transmission system by improving the generation angular stability margins in Southeastern Wisconsin and Northeastern Illinois. In addition, the Project provides an increase in power transfer capability across the interface. Further, the Project will reduce steady-state system losses.

Reliability benefits are discussed in Section 2.5 and the reliability assessments are described in detail in Section 6 of the Planning Analysis located in Appendix C, Exhibit 1. Some of the reliability benefits are: operating guide elimination; increased transfer capability; an additional outlet from PLP to better handle contingency events; alleviates need for future system upgrades to address contingency overloads on the 138 kV transmission system.

### **D. PROJECT COST**

ATC estimates the total cost of the construction to be between \$30.8 million and \$31.5 million depending on the route ordered. Estimated project costs are set forth in greater detail in Section 2.1.7.1 of the attached TSD.

## **Pleasant Prairie-Zion Energy Center Project Introduction And Overview**

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### **E. CONSTRUCTION SCHEDULE**

Construction is planned for May 2013 through May 2014. Additional information concerning the proposed construction is provided in Section 2.1.8 of the attached TSD.

### **F. ENVIRONMENTAL IMPACTS**

This project is categorized as a Type II action pursuant to *Wis. Adm. Code* § PSC 4.10(2). Information necessary for the preparation of an Environmental Assessment is provided in the attached TSD.

In accordance with *Wis. Stat.* ch. 283 and §§ 30.025(1s), 30.123 and 281.36, and *Wis. Adm. Code* chs. NR 103, 216, 299, and 320, ATC submitted Part 1 of its Utility Permit Application to the WDNR for the proposed project on September 30, 2011. Part 1 included the required permit application forms. A copy of Part 1 is provided in Appendix E of the TSD. This Joint Application to the Commission and WDNR includes Part 2 of ATC's Utility Permit Application. The information contained within the attached TSD and Appendices includes the information required by the WDNR to evaluate and issue the required permits for construction. This information is being provided to the WDNR by copy of this Joint Application.

### **G. ENTITIES AFFECTED**

Several federal, state, regional and local units of government are affected by this project. Appropriate permits to the extent required under Wisconsin law will be obtained prior to construction of the new facilities in the locations affected by the project, as discussed in Section 2.9.3 of the attached TSD. Mailing lists in the prescribed format for affected public, government officials, libraries and other entities requiring project notification are provided in the TSD, Appendix H.

### **H. COST OF OPERATION AND RELIABILITY OF SERVICE**

ATC believes the proposed Project is the most appropriate means for discharging its obligation as a public utility and transmission company charged with the obligation of providing reliable, competitively-priced transmission service to all users.

## Pleasant Prairie-Zion Energy Center Project Introduction And Overview

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Joint Application for PSCW Certificate of Public Convenience and Necessity  
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The proposed transmission facilities would provide significant support to the regional transmission system by improving the generation angular stability margins and transmission system power transfer capability. Additional *Reliability Analysis* located in Appendix C, Exhibit 1.

The proposed Project is projected to provide an economic benefit in four out of six plausible futures scenarios [assuming costs are shared throughout the Midwest Independent Transmission System Operator, Inc. (MISO) as a Multi-Value Project (MVP) ] as shown in Section 11 of the Planning Analysis located in Appendix C, Exhibit 1.

The proposed facilities meet this need and do not provide facilities in excess of present and probable future requirements. When placed in operation, the proposed facilities will not result in annual costs disproportionate to the service value of the work performed or the quantity of available service.

### I. CONCLUSION

Based on the material contained in this application, and any subsequent material requested by the Commission and the Department or its staff relative to this application, ATC requests that the Commission issue a Certificate of Public Convenience and Necessity and other such authorizations as may be required to construct the transmission facilities as described and in the manner set forth, and to determine the amount of the environmental impact fee and the allocation of that fee to the appropriate parties.

Similarly, ATC requests that the WDNR issue all the permits and authorizations as may be required to construct the transmission facilities as described and in the manner set forth, within 30 days of the date that the PSC issues its decision on the CPCN Application, pursuant to *Wis. Stat.* § 30.025(4).

Respectfully submitted this 13th day of October, 2011.

American Transmission Company LLC, and ATC Management Inc.

/s/ Stephen Parker

Stephen Parker  
Manager, State Regulatory Affairs  
ATC Management Inc.

## **Pleasant Prairie-Zion Energy Center Project Introduction And Overview**

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Joint Application for PSCW Certificate of Public Convenience and Necessity  
WDNR Utility Permit Application (Part 2)

# **Pleasant Prairie-Zion Energy Center Project**

## **Technical Support Document**

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Joint Application for PSCW Certificate of Public Convenience and Necessity  
WDNR Utility Permit Application (Part 2)

### **TECHNICAL SUPPORT DOCUMENT**

The information provided below follows the format of the Public Service Commission of Wisconsin (PSCW or Commission) and Wisconsin Department of Natural Resources (WDNR) "*Application Filing Requirements for Electric Transmission Lines and Substations*" Version 18 (Part 2.00), issued May, 2011 by the PSCW. The information provided relates to the proposed construction project for which authority is sought in this application.

### **2.1 ENGINEERING INFORMATION**

Please refer to the Pleasant Prairie-Zion Energy Center Project map located in Appendix A, Figure 1, which shows the location of the proposed construction activities as described below.

#### **2.1.1 Type and Location of Line Construction**

This Project involves the construction of 5.3 to 5.8 miles (depending on the route ordered) of new 345 kV transmission line between the Pleasant Prairie (PLP) Switchyard, located in the village of Pleasant Prairie, Kenosha County, WI and Zion Energy Center (ZEC) Substation in city of Zion, Lake County, IL. The first 0.5 mile of the new line will be double-circuited with an existing 345 kV transmission line 611 (after the PLP Reconfiguration Project completion will be designated as PLPL31) exiting the PLP Switchyard. The remainder of the new line will be single circuit. See Appendix B, Exhibit 4 for additional detail.

Alternate Route 1 is comprised of route segments 1, 2a, 2b, and 2c, in Wisconsin. Alternate Route 2 is comprised of route segments 1, 4a, 4b, 4c, 4d and 4e. See Appendix A, Figure 1 Project Map for the location of the alternate routes and segments.

#### **2.1.2 General Description of Proposed Line**

ATC proposes to construct the new overhead 345 kV transmission line on single-circuit steel monopoles in a vertical configuration on new ROW (except the first 0.5 mile which is on existing ROW).

## **Pleasant Prairie-Zion Energy Center Project Technical Support Document**

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Joint Application for PSCW Certificate of Public Convenience and Necessity  
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### **2.1.2.1 Size of Line**

ATC proposes to construct the new overhead 345 kV transmission line using single-circuit TP-1113 kcmil 45/7 ACSR "Bluejay" conductor (or equivalent).

### **Optical Ground Wire Conductors & Shield Wire**

The new 345 kV transmission circuit will include a 7/16" EHS shield wire) and an optical ground wire (OPGW) to protect the line from lightning strikes and also to provide for relaying.

### **Structures and Span Lengths**

On average, structure heights are expected to range from 120 to 155 feet above ground, depending on the terrain and number of circuits with an average span length of 700 feet. Maps depicting preliminary pole spotting are located in Appendix B, Figure 9.

In general, the new tangent, angle and dead-end structures for the new transmission line will be single-circuit vertically-configured steel monopoles on caisson foundations, with the exception of Segment 1 (see description in Section 2.1.2.2 below). If soil conditions are suitable, ATC may elect to direct embed, use vibratory caissons or other suitable foundation systems provided they are more economical.

The alignment for Segments 2a, 2b, and 2c would be 30 feet from the edge of railroad ROW with the arms pointed away from the tracks. There is one structure exception on Segment 2C where the structure will be pointed towards the tracks (See Appendix B, Figure 11, Attachment 3A). The alignment for Segments 4b, 4c and 4d primarily follows the west side of State Trunk Highway (STH) 31 approximately 6 feet outside of road ROW. (See Appendix B, Figure 11, Attachment 3C). Segment 4e generally follows parcel lines.

### **2.1.2.2 Configuration of Lines**

Common Segment 1 (Common to all routes) The first three spans (0.5 miles) of the new PLP-ZEC 345 kV transmission line designated as PLPL41 exiting PLP will be installed in a double

## Pleasant Prairie-Zion Energy Center Project Technical Support Document

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circuit configuration with existing 345 kV Circuit 611 on existing ROW. The first structure exiting the PLP Switchyard will be a new single-circuit steel monopole. New Circuit PLPL41 will then be hung on an existing lattice tower (Structure #1422) with the existing 345 kV Circuit 611. Structure 1423 will be replaced with a new double-circuit large angle steel monopole to accommodate the new line angle and circuit rating. Circuit PLPL41 will then continue east to a new 345/138 kV double-circuit steel monopole (Structure #1) on the east side of the railroad tracks, dead-ended with the 138 kV Circuit 63141, which will be located on a cross-arm below the new 345 kV circuit. (See Appendix B, Figures 8 and 3) Segment 1 is entirely on Wisconsin Electric Power Company property.

Alternate Route 1 (Railroad/transmission or western route is comprised of Segments 1, 2a, 2b, and 2c in Wisconsin.) New Circuit PLPL41 will be constructed using single-circuit vertical configuration steel monopoles on new ROW adjacent to the existing Union Pacific railroad and transmission line ROW, primarily 30 feet from the edge with the arms pointed away from the tracks. Segments 2a, 2b, and 2c run parallel to and east of the railroad tracks between Structures 1 and 22. Segments 2a and 2c have no parallel distribution lines, while Segment 2b has a buried distribution line on the same side of the railroad tracks. (See Appendix B, Figure 11, Attachment 3A for a typical cross-section.)

Alternate Route 2 (STH 31 or eastern route is comprised of Segments 1, 4a, 4b, 4c, 4d and 4e in Wisconsin.) New Circuit PLPL41 will be constructed using single-circuit vertical configuration steel monopoles. Segment 4a is approximately 0.28 miles long on private property lines proceeding directly east from Segment 1 to connect to STH 31. Segments 4b, 4c and 4d run adjacent to the existing STH 31 approximately 6 feet outside of road ROW on private property for approximately 2.42 miles. At Structure 221, approximately 0.02 miles south of County Trunk Highway (CTH) ML, Segment 4e heads west approximately 0.24 mile and then turns south at Structure #223 for another 0.74 miles along property lines. (See Appendix B, Figure 11 attachment 3C for a typical cross-section)

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Modification to 138kV Circuit 63141 (Common to all routes) will be required to accommodate the crossing of the new 345kV circuit to the east side of the railroad corridor. One (1) new 345/138 kV double circuit structure (Structure 1) will be installed south of existing Structure 1424. The existing conductor and shield wire for circuit 63141 from Structure 1424 to 20202 will be transferred and dead-ended to a cross-arm below the new 345 kV circuit on the new Structure 1. Existing Structure 20202 will be replaced with a new single-circuit steel pole guyed or self-supporting dead-end structure. The existing conductor and shield wire from Structure 20203 will be dead-ended on the new Structure 20202. New conductor and shield wire will be installed from the new 345/138 kV double-circuit Structure 1 to Structure 20202. See Appendix B, Figures 8 and 3 for additional detail for the work described above.

The transmission line ROW requirements are addressed separately in Section 2.4.1 of this document.

### **2.1.3 Transmission Studies**

ATC's Planning Analysis of the Pleasant Prairie-Zion Energy Center Project ("Planning Analysis") studied the problem of how transmission congestion contributes to higher energy costs for ATC's customers. The Planning Analysis also evaluates the costs and benefits of various options that address these problems (see Appendix C, Exhibit 1 of the TSD).

#### **2.1.3.1 System Normal**

Although there are no system normal issues identified in the Planning Analysis, historical market congestion has shown the Pleasant Prairie to Zion 345 kV line has been an "intact system" transmission system constraint issue as discussed in Section 2.0 of the Planning Analysis.

#### **2.1.3.2 Single Contingencies**

The single contingency analysis performed is discussed in Section 6.1 of the Planning Analysis.

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### **2.1.3.3 Alternative Network Solutions**

This economically-justified project has evolved over the past three years of evaluation through ATC's FERC Order 890 Open Stakeholder Process. Several different transmission project alternatives were evaluated for effectiveness in achieving economic benefits. In addition, reliability benefits can also be realized as a result of this proposed project.

#### **2.1.3.3.1 Prior Relevant Regional Studies**

Section 3.0 of ATC's Planning Analysis of the PLP-ZEC 345 kV Transmission Project, presents detailed information about the alternative network solutions listed below.

Alternative #1 – PLP-ZEC new 345 kV transmission line  
(Project proposed in this application)

Alternative #2 – Low Voltage Alternative

Alternatives Previously Considered – Subsequently Dismissed

Alternative #3 – Racine-ZEC new 345 kV transmission line

Alternative #4 - Bain-ZEC new 345 kV transmission line

Alternative #5 – Loop-in of Arcadian-Zion 345 kV line into the PLP Switchyard

Section 8 of the Planning Analysis, provides specific information about the state and regional studies and activities relevant to this project. ATC regularly coordinates with adjoining transmission owners and MISO to access regional transmission needs.

Working with Commission staff, MISO planners, adjoining transmission owners, and numerous Wisconsin utility stakeholders and other interested parties, ATC has determined that the PLP-ZEC project is the most appropriate means to reduce congestion and improve access.

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### **2.1.3.3.2 Reliability and Performance Benefits of Solutions**

Section 5.4 of ATC's Project Planning Analysis provides detailed information about the economic benefits of the project and available options. Reliability benefits of this Project are described further in Section 6.0 of the Planning Analysis.

### **2.1.3.4 Electrical Losses**

By strengthening the ATC transmission system, PLP-ZEC will also reduce steady-state electrical losses for the study area customers that would otherwise have to be replaced by incremental generation. Further detail on this analysis can be found in Section 6.5 of the Planning Analysis located in Appendix C, Exhibit 1.

### **2.1.3.5 Generator Interconnection Short Circuit, Stability, and Thermal Analyses**

This Joint Application does not include a generator interconnection. Therefore, these analyses are not applicable

### **2.1.3.6 Distribution Substation Need and Alternatives**

This section is not applicable to this Joint Application.

### **2.1.3.7 Planning Simulation Data (PSSE/Power World)**

ATC's reliability-based PSSE models will be filed confidentially with the PSCW in this docket.

In addition, a compact disc containing the input and output files from ATC's PROMOD (Ventyx software which provides a detailed generator and portfolio modeling system, with nodal LMP forecasting and transmission analysis) analysis of the Project for 2015, 2020 and 2026 will be filed confidentially with the PSCW in this Docket.

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### **2.1.4 Substation Facilities**

Modifications will be required at the Pleasant Prairie Switchyard, Zion Energy Center Substation, and Bain Substation.

#### Pleasant Prairie Switchyard

Work at the PLP Switchyard will include installation of the following new equipment:

- 1 - 345 kV dead-tank circuit breaker (including new foundation, jumpers, grounding, control cabling, and conduit to the existing trench)
- 2 manually-operated disconnect switches
- 1 motor-operated line disconnect switch
- 4 - 345 kV CCVTs
- 1 line trap
- 3 line surge arresters
- 1 dead-end structure
- 2 relay panels
- Cabling will be installed from the PLPL41 circuit breaker, CCVTs, and the motor-operated line disconnect switch in the existing bay position in new conduit and then use existing cable trench to route them to the existing control house.

See Appendix B, Figures 4, 6 and 7 respectively, for a topographical view of the switchyard, and schematic drawings of the control house and proposed equipment layout. A Project area one-line drawing is located in Appendix B, Figure 5.

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#### Zion Energy Center Substation

Work at the ZEC Substation will include installation of the following equipment:

- 1 - 345 kV live-tank circuit breaker (including new foundation, jumpers, grounding, control cabling, and conduit to the existing trench)
- 3 - free-standing current transformers (CTs) (for live-tank gas circuit breaker protection)
- 2 - manually-operated disconnect switches
- 1 - motor-operated line disconnect switch
- 1 - line dead-end structure with foundation and grounding at an existing position in northeast bay
- 3 - line arresters on single-phase structures and foundations
- CCVT Wave trap/Tuner assembly on a new foundation and steel structure on the center phase between the arrester and the dead-end
- 3 - free-standing CTs on new foundations and structures between the new dead-end and the new motor-operated line switch 89-4
- 3 - single-phase bus CCVTs on new foundations and structures between bus 4 and line switch 89-4
- Extension of the existing bus and new jumpers to all new equipment
- 1 - OPGW fiber optic splice box will be mounted on new dead-end structure for transition to the new OPGW cable to indoor/outdoor fiber optic cable to the control building
- Connect existing ground grid to all new equipment
- Below-grade conduit from the CCVTs, CTs, FO splice box, and gas breaker to the existing cable trench
- 2 - relay panels for protection and control of the BT3-4 circuit breaker
- Cabling will be installed from the BT3-4 circuit breaker, CTs, CCVTs, and the motor-operated line disconnect switch (for PLPL41) in the northeast bay in new conduit and then use existing cable trench to route them to the existing control house.

Work at the ZEC Substation will also entail removal of the following equipment:

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- Existing 3-phase bus support and bus between existing disconnect switches
- Existing bus support structure foundation (at the new breaker site)
- Existing shield poles at the northeast bay and foundations to be partially removed

See Appendix B, Figures 12 and 13 for the ZEC proposed one-line diagram and proposed equipment layout, respectively.

### Bain Substation

- 345kV Bus Section 4 will require one new three phase bus support beam, new center phase 5-inch bus conductor, 795 kcmil ACSR bus damping conductor, high strength insulator, connectors and jumper conductors.
- 345kV Bus Section 5 will require one new three phase bus support beam, new center phase 5-inch bus conductor, 795 kcmil ACSR bus damping conductor, high strength insulator, connectors and jumper conductors.
- The enhancements to the existing grounding system will include new buried conductors and connections primarily around the perimeter of the existing ground grid. These enhancements are required to keep the touch and step potentials within IEEE 80 requirements for the increased fault current.

### **2.1.5 Contractual Agreements**

On January 8, 2010 ATC, ComEd, MISO, and PJM signed a Transmission Interconnection Agreement. The Interconnection Agreement establishes the requirements, terms, and conditions for the interconnections between ATC and ComEd and defines the parties' continuing financial, regulatory, construction, maintenance, and operations responsibilities and obligations among other terms. A copy of the Interconnection Agreement is located in Appendix I, Exhibit 1. This agreement was accepted for filing by the Federal Energy Regulatory Commission in Dockets ER10-1084 and ER10-1086. The Interconnection Agreement was filed in two separate dockets, one for each RTO. Copies of the two FERC letter orders are located in Appendix I, Exhibits 2 and 3.

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On February 18, 2011 ATC proposed to ComEd that both parties develop a new point of interconnection at ComEd's existing Zion Energy Center Substation. On June 14, 2011 both parties signed a Transmission Upgrade Agreement to cover ComEd work necessary to engineer and construct the new point of interconnection. Copies of both documents are located in Appendix I, Exhibit 4. Amendment of the Transmission Upgrade Agreement is in progress to reflect point of interconnection configuration changes consistent with recent development of the preferred Alternate Route #3 (See Appendix I, Exhibit 5).

### **2.1.6 Transmission Service Agreements**

Transmission service will be provided under the terms of the MISO Open Access Transmission Tariff (OATT) and is administered by the MISO.

### **2.1.7 Transmission Costs**

The total itemized cost for the project as specified in the *Application Filing Requirements* is detailed in the table under Section 2.1.7.3.

#### **2.1.7.3 Project Cost Components for 345 kV or greater**

The following table provides the total itemized cost for the Project as specified in Sections 2.1.7.3.1.1 through 2.1.7.3.1.3 and Sections 2.1.7.3.3.1 (Environmental Protection and Licensing); 2.1.7.3.3.2 (Technical Support); and 2.1.7.3.4 (Environmental Impact Fees) of the *Application Filing Requirements*. Project costs for transmission line and substation construction have been combined and then categorized by transmission line voltage. Project costs for environmental impact fees, removal, and operating and maintenance expense during construction are categorized as other project costs. The gross project cost is the sum of project costs by voltage and other projects costs.

##### **2.1.7.3.1 Transmission Costs**

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### Wisconsin Segments

Transmission Lines by Voltage	Project Cost Categories	Alternate Route 1	Alternate Route 2	Alternate Route 3
New 345 kV Transmission Line	<b>Material</b>			
	a. Structures	\$1,629,100	\$1,964,600	\$1,629,100
	b. Wire	1,220,700	1,437,300	1,220,700
	c. Hardware	177,000	265,000	177,000
	<b>Labor</b>			
	a. Transmission Overhead Work (Poles, Fixtures, Wire, OPGW & Matting)	2,183,300	2,225,100	2,183,300
	b. Foundations	796,000	1,126,800	796,000
	c. Site	374,700	418,600	374,700
	<b>Other</b>			
	Real Estate	3,487,700	2,760,500	3,487,700
	Environmental	140,000	184,000	140,000
	Technical Support Services	358,000	384,300	358,000
	Removal	16,300	16,000	16,300
	Other Misc.	1,405,800	1,459,900	1,405,800
	<b>Total Cost</b>	<b>\$11,788,600</b>	<b>\$12,242,100</b>	<b>\$11,788,600</b>
345/138 kV Double Circuit Transmission Line 63141	<b>Material</b>			
	Structures	\$17,300	\$17,300	\$17,300
	Wire	78,200	78,200	78,200
	Other Material	22,300	22,300	22,300
	<b>Labor</b>			
	Site	25,800	25,800	25,800
	Below Grade	0	0	0
	Above Grade	43,700	43,700	43,700
	<b>Other</b>	92,600	92,600	92,600
	<b>Total Cost</b>	<b>\$279,900</b>	<b>\$279,900</b>	<b>\$279,900</b>
	<b>Transmission Line Projects Total</b>	<b>\$12,068,500</b>	<b>\$12,522,100</b>	<b>\$12,068,500</b>

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<b>Illinois Segments</b>				
<b>Transmission Lines by Voltage</b>	<b>Project Cost Categories</b>	<b>Alternate Route 1</b>	<b>Alternate Route 2</b>	<b>Alternate Route 3</b>
<b>New 345 kV Transmission Line</b>	<b>Material</b>			
	Structures	\$1,433,700	\$1,361,800	\$1,531,100
	Wire	637,000	700,700	700,700
	Hardware	164,400	143,700	191,100
	<b>Labor</b>			
	Transmission Overhead Work (Poles, Fixtures, Wire, OPGW & Matting)	1,186,800	1,065,800	917,100
	Foundations	913,000	588,300	632,600
	Site	211,100	257,200	233,300
	<b>Other</b>			
	Real Estate	3,286,300	2,691,200	3,146,900
	Environmental	143,000	102,600	107,400
	Technical Support Services	260,600	252,200	261,300
	Removal	13,200	11,000	11,800
	Other Misc	1,106,700	967,500	1,040,600
	<b>Total Cost</b>	<b>\$9,355,800</b>	<b>\$8,142,000</b>	<b>\$8,773,900</b>

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<b>Other Project Costs</b>	<b>Pre-certification</b>	\$2,313,000	\$2,313,000	\$2,313,000
	<b>One Time 5% Environmental Fee</b>	672,800	693,800	672,800
	<b>Annual 0.3% Environmental Fee (During Construction Only)</b>	2,000	2,100	2,000
	<b>Operation and Maintenance (Estimated During Construction Only)</b>	34,800	33,200	33,900
<b>Subtotal Costs</b>		<b>\$3,022,600</b>	<b>\$3,042,000</b>	<b>\$3,021,700</b>
	<b>Substation Projects Subtotal (Sect. 2.1.7.3.2 below)</b>	\$7,101,300	\$7101,300	\$7,101,300
	<b>Total Gross Project Cost</b>	<b>\$31,548,200</b>	<b>\$30,807,340</b>	<b>\$30,965,450</b>

### Notes:

- All costs in 2013 dollars.
- All material, labor and other costs associated with the construction of the proposed facilities are based on estimates of the costs. ATC reasonably anticipates that the cost of construction may increase due to changes in the cost of materials, labor and other items, including the value of real estate. ATC will supplement the estimated cost of construction in the event that it becomes aware of any material changes to the estimated costs prior to the Commission issuing an order authorizing the proposed construction.

Pre-certification expenses include those expenses necessary to perform preliminary design, conduct environmental reviews and public outreach, prepare the Joint Application, and obtain approval.

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### 2.1.7.3.2 Substation Costs

#### 2.1.7.3.2.1 Material

#### 2.1.7.3.2.2 Construction

#### 2.1.7.3.2.3 Other

The following table provides the total itemized cost for the project as specified in Sections 2.1.7.3.2.1 through 2.1.7.3.2.3 of the *Application Filing Requirements*.

### Wisconsin Substation Work

Substation	Project Cost Categories	Alternate Route 1	Alternate Route 2	Alternate Route 3
Pleasant Prairie Substation	Material	\$1,247,500	\$1,247,500	\$1,247,500
	Construction	296,400	296,400	296,400
	Other	555,000	555,000	555,000
	<b>Subtotal</b>	<b>\$2,098,900</b>	<b>\$2,098,900</b>	<b>\$2,098,900</b>

Fault Current Impacts to Surrounding Substations (Bain SS)	Material	\$218,600	\$218,600	\$218,600
	Construction	54,100	54,100	54,100
	Other	207,200	207,200	207,200
	<b>Subtotal</b>	<b>\$479,900</b>	<b>\$479,900</b>	<b>\$479,900</b>

### Illinois Substation Work

Zion Energy Center	Material	\$1,800,400	\$1,800,400	\$1,800,400
	Construction	2,085,730	2,085,730	2,085,730
	Other	636,400	636,400	636,400
	<b>Subtotal</b>	<b>\$4,522,500</b>	<b>\$4,522,500</b>	<b>\$4,522,500</b>
	<b>Substation Projects Subtotal</b>	<b>\$7,101,300</b>	<b>\$7,101,300</b>	<b>\$7,101,300</b>

### 2.1.7.3.3 Environmental Protection & Licensing Costs

See table in Section 2.1.7.1 or 2.1.7.3 (for 345 kV projects) for items requested in Sections 2.1.7.3.3.1 through 2.1.7.3.3.3.

#### 2.1.7.3.3.1 Environmental Monitoring Services

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### **2.1.7.3.3.1.1 Cost for Internal Environmental Monitors**

Internal environmental monitors, who are directed by ATC environmental staff, are responsible for the inspection and monitoring of construction activities in accordance with the environmental permit requirements and regulations applicable to the Project. They will work directly with ATC staff and ATC contractors, providing advice, consultation, and reports on environmental matters as they relate to construction activities. They will also communicate directly with agency staff, as required. The estimated cost of ATC internal environmental monitors is \$117,000.00 (in 2013 dollars). This estimate assumes that one monitor will work an average of two days a week for 49 weeks which, includes both active construction and a 60 day re-vegetation period.

### **2.1.7.3.3.1.2 Cost for Independent Environmental Monitors**

American Transmission Company does not anticipate that independent monitors will be required, so costs for this service were not included in the estimate.

### **2.1.7.3.3.1.3 Agricultural Protection**

American Transmission Company does not anticipate that Agricultural Protection measures (also called Farm Disease Prevention) will be required. Therefore, costs associated with Agricultural Protection were not included in the estimate. ATC assumes that protection measures are only required in areas that have livestock or practice organic farming. A review of the 2010 Certified Organic Farm Mailing list provided by the Department of Agriculture Trade and Consumer Protection and United States Department of Agriculture National Organic Program data base confirmed there are no organic farms on either Alternate Route 1 or Alternate Route 2 in Wisconsin. Additionally, no livestock were observed along either route. However,

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what appears to be a small horse farm is located along Alternate Route 1. A small shed (i.e. could house 1 to 2 horses), horse corral, and pasture were observed. ATC will work with potentially affected agricultural landowners to ensure that, in the event farm disease mitigation is currently practiced by the landowners, mitigation plans will be adhered to during construction of the transmission line.

### **2.1.7.3.3.1.4 Environmental Protection Wetlands, etc.**

A wetlands/accessibility factor was used to estimate the quantity of mats for the entire length of the line that traverses wetlands, using each mat twice. It was assumed that ROW access is required for the entire centerline length in wetlands. Mats are stacked two high with nominal mat dimensions of 4 feet x 12 feet.

### **2.1.7.3.3.2 Technical Support Services**

The technical support services portion of the transmission line estimate summarizes costs associated with engineering and project management, including the payment of sales taxes. The estimated cost for technical support services on Alternate Route 1 is \$358,000 in WI and \$260,600 in IL and for the Alternate Route 2 is \$384,300 in WI and \$252,200 in IL.

Costs outside the preparation of the Joint Application include costs to develop an Environmental Access Plan, Construction Mitigation Plan, and an environmental training plan. The total assumed cost for this work is \$8,500 (in 2013 dollars).

Storm Water and Erosion Control plans and updated Wis. Adm. Code ch. NR 216 submittals will be needed prior to construction. ATC will also provide information and a review fee to local governments. Total assumed cost for this work is \$15,000.00 (in 2013 dollars).

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Archaeological field surveys have been recommended by the Great Lakes Archaeological Research Center, ATC's archaeological consultant, to determine the location and extent of previously reported archaeological sites. Sites are expected to need surveys on each route, with an estimated cost of \$4,000.00 (in 2013 dollars) for the ordered route.

### **2.1.7.3.3.3 Costs Listed as Licensing and Regulation**

The cost of the WDNR Utility Permit will vary by route; however, for the purpose of this cost estimate, an average value of \$4,500 was assumed. This cost assumes that the Utility Permit will include Water Quality Certification, *Wis. Stat.* Chapter 30, and *Wis. Adm Code* ch. NR 216 coverage, and includes the cost of preparing the Utility Permit Application

### **2.1.7.3.4 Environmental Impact Fees Estimate [per Wisc. Stat. §196.491(3g)]**

**Identify which components of the total project cost were used as the base cost and how the fees were calculated.**

The estimated one-time 5% environmental impact fee is \$672,800 for Alternate Route 1, and \$693,800 for Alternate Route 2. The estimated annual 0.3% environmental impact fee is \$2,025 for the Alternate Route 1, and \$2,088 for the Alternate Route 2 during the construction period only when the fee is capitalized. These figures are also shown in the "Other Project Costs" table in Section 2.1.7.3 above. The estimated environmental impact fees for the proposed routes are shown in Section 2.1.7.3.1 of this document and in Appendix J, Tables 1 and 2.

### **2.1.7.4 Regional Midwest ISO Projects – Cost Benefit Analysis and Allocation Cost**

As a Candidate MVP, the PLP-ZEC project would receive MISO MVP cost sharing from the MISO member companies. The importance of MISO MVP cost sharing is that ATC ratepayers are currently estimated to pay not more than 15% of the cost

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allocated across the MISO region if the PLP-ZEC project receives final MVP status. The MISO analysis is currently underway and is expected to be completed by the end of 2011.

ATC calculated the local economic benefits of each transmission alternative over a range of six plausible futures. The ATC Customer Benefit metric was used as the basis of determining value for ATC customers. With cost sharing via the MISO Candidate MVP allocation, PLP-ZEC showed positive net benefits in four out of the six futures analyzed over the 50 year economic life of the project<sup>1</sup>. PLP-ZEC showed positive net benefit in three out of six futures if the project is not cost shared and ATC customers pay for the full cost of the project. The Low Voltage alternative is not considered eligible for MVP cost sharing and showed net positive benefits in only one out of the six futures analyzed. The *Planning Analysis* located in Appendix C, Exhibit 1, Figure 1 provides a graphical representation of the Net Project Cost/Benefit with 15% Cost Requirement due to MISO MVP Cost Sharing. Figure 2 provides a graphical representation of the Net Project Cost/Benefit with 100% Cost Requirement without MISO MVP Cost Sharing.

### **2.1.7.5 Cost of Electrical Losses & Assumptions**

The Planning Analysis (Appendix C, Exhibit 1 to the TSD) contains the calculations of electrical losses and the assumptions underlying those calculations. The steady state system loss reduction measured in MW for each alternative is set out in Section 6.5 Table 38. Section 5.4.9 discusses the “Energy Savings from Reduced Losses” which identifies the calculated system loss savings attributed to the PLP-ZEC project via a PROMOD analysis.

### **2.1.8 Construction Schedule and Seasonal Construction Constraints**

American Transmission Company anticipates constructing the proposed PLP-ZEC on the following schedule assuming that the

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<sup>1</sup> Assumes that ATC customers will not pay more than approximately 15% of the cost allocated across the MISO region with PLP-ZEC receiving final MVP status.

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Commission issues its order authorizing the construction on or before May 21, 2012:

Activity	Expected Schedule
Detailed Engineering-	Summer/Fall 2012
Obtain Transmission Line Right-of-Way	Winter 2012-2013
PLP Switchyard Modifications Complete:	May 2013
Transmission Line in Service:	March 2014
ZEC Substation Modifications Complete	May 2014

ATC has not identified any seasonal construction constraints at this time; however, we will be evaluating areas for construction along the Alternate Route 1 to determine the benefits of construction during winter months.

### 2.1.9 Transmission Tariffs

The capital costs incurred for the construction of the proposed transmission line and substation facilities will be recovered in accordance with the provisions of the Open Access Transmission and Energy Markets Tariff of the Midwest ISO and the rules and regulations of the Federal Energy Regulatory Commission.

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## **2.2 PROJECT DEVELOPMENT AND ALTERNATIVES CONSIDERED**

### **2.2.1 System and Local Transmission-Level Alternatives (& reasons rejected)**

American Transmission Company has evaluated several alternatives to the proposed construction for which authority is sought in this Joint Application. The description, analysis and evaluation of the alternatives considered are provided in Section 3 of its Planning Analysis found in Appendix C, Exhibit 1.

### **2.2.2 Route Evaluation Factors**

Siting of new transmission lines is a multi-stage process consisting of:

1. Identifying potential route corridors between established end points meeting the routing priorities defined in *Wis. Stat. § 1.12(6)* (2003). These priorities, consistent with economic and engineering considerations, safety, and reliability of the transmission system and protection of the environment include, in order of priority:
  - a. Existing utility corridors.
  - b. Highway and railroad corridors.
  - c. Recreational trails to the extent the facilities may be constructed below ground and do not significantly impact environmentally sensitive areas.
  - d. New corridors.
2. Parsing identified corridors into discrete segments and recombining segments to identify potential transmission line routes. A variety of transmission line routes may be developed utilizing the various identified route segments. Possible transmission line routes are screened against several criteria, including those specified in *Wis. Stat. § 196.491(3)(d)*, to determine the route alternatives as proposed in this Joint

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Application. To the extent practical, these criteria include, but are not limited to:

- Avoiding high-density residential areas.
  - Conforming with existing and proposed land use patterns.
  - Avoiding individual hardships.
  - Using existing ROW to minimize the need for additional facility ROW (corridor sharing).
  - Avoiding public and private hunting grounds, woodlands, flood plains and wetlands.
  - Maintaining compatibility with local agricultural practices.
  - Minimizing environmental impacts consistent with engineering and economic considerations.
3. Soliciting input from local landowners and public officials at various stages in the process to identify local issues and concerns with potential transmission line corridors and routes.
4. Performing a multidisciplinary review and evaluation considering and balancing the quantitative as well as qualitative factors discussed above along with design, engineering, economic, and operational considerations, to identify a minimum of two routes, Alternate Route #1 (western railroad route) and Alternate Route #2 (eastern STH 31/ Illinois State Highway 131), for presentation to the Commission.

Potential route corridors and evaluated routes are discussed in further detail below. Potential corridors and evaluated routes are shown on Appendix A, Figure 1.

### **2.2.3 Route Corridor Alternatives**

Major corridors in the proposed project area are located in Kenosha County, WI and Lake County, IL and include: the existing 345 kV transmission line 611 ROW near the PLP Switchyard; the existing 138 kV transmission line 63141 ROW from the terminus of Segment 1 south to CTH ML; the existing 345 kV transmission lines 2221 and 2222; the existing 138 kV transmission line ROW from Lakeview Substation to the state line; CTH H; STH 31; the Union Pacific railroad, various village and city roads, and property lines.

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In addition to investigating the major corridors, ATC also investigated new cross-country corridors, generally following existing features such as field and section lines, to minimize landowner impacts. In general, cross-country route corridors were chosen for evaluation where they would reasonably intersect with higher priority corridors.

For this Project, the primary north-south corridor-sharing options are the Union Pacific railroad/existing transmission line ROW and STH 31 (Green Bay Rd.) corridors.

### Corridors Eliminated from Proposal

The CTH H corridor was dropped from further consideration because of the numerous residences and a day care facility that would have been impacted by the proposed new transmission line. The 80<sup>th</sup> Avenue corridor was dropped because there was insufficient ROW to expand to a triple-circuit configuration, and the crossing of existing 345 kV lines that it would involve. State Highway 131 in Illinois was eliminated due to a planned road widening project that would prohibit locating the line in IDOT ROW.

The Alternate Route #1 (western transmission/railroad), Alternate Route #2 (eastern STH 31) routes selected for presentation in this Application utilize existing railroad and road corridors to a major extent in Wisconsin, and minimize environmental impacts. Additional routing information can be found in Sections 2.3 and 2.4 below.

### **2.2.4 Public Outreach**

ATC representatives have actively sought input on project route alternatives and related issues from state, county and local governments, elected officials, landowners and business leaders. Discussions with Illinois Department of Transportation officials included a detailed review of plans for expansion of Illinois State Highway 131 from Russell Road (state border) past 9th Street in the City of Zion. Discussions with Wisconsin business landowners focused on transmission line right of way needs and possible future rail spur additions to existing manufacturing sites and possible facility expansions.

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Neil Palmer, ATC's contract public affairs consultant met with landowners and the developer of the Lakeview Corporate Park and Village of Pleasant Prairie zoning staff. On February 16, 2011, Pete Holtz, ATC Major Projects siting consultant, and Kevin Lynch, ATC Real Estate Representative, met with Jean Werbie Harris, Director of Planning for the village of Pleasant Prairie to discuss the Project. On March 7, 2011, Neil Palmer and Pete Holtz met with Jim Kreuser, Kenosha County Executive, John Steinbrink, Village President-Pleasant Prairie, and other county and village representatives to discuss the Project. On March 18, 2011, Neil Palmer met with Mike Spence, Pleasant Prairie Village Engineer and Mike Pollocoff, Village Administrator, to discuss road design issues related to the Project substation interconnection. A public open house for the proposed PLP-ZEC Project was held on April 6, 2011, during which ATC staff were available to answer questions and receive feedback about the project. A copy of the open house invitation letter is located in Appendix F, Exhibit 2. Members of the Village of Pleasant Prairie Planning Commission attended the open house and were briefed on the project. Meetings and discussions with individual landowners and local officials have continued through the spring and summer as needed. A record of public comments on the proposed Project is located in Appendix F, Exhibit 3.

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### **2.3 GENERAL TRANSMISSION LINE SITING INFORMATION**

The Project area, including identification of potential route corridors Alternate Route #1 and Alternate Route #2, is shown on the Project area map provided as Appendix A, Figure 1. Appendix A also includes the following maps specified in the Application guidelines under Sections 2.3.1 through 2.3.6:

- 400' Scale Index Maps attached as Appendix A, Figure 2;
- Orthophotography Maps for Alternate Route #1 and Alternate Route #2 are attached as Appendix A, Figure 4;
- Topographic maps are attached as Appendix A, Figure 3;
- Federal Emergency Management Agency floodplain information are attached as Appendix A, Figure 8;
- Figures identifying zoning along the Alternate Route #1 and Alternate Route #2 are attached as Appendix A, Figure 6;
- Orthophotography including environmental features (wetlands, etc.) for Alternate Route #1 and Alternate Route #2 are attached as Appendix A, Figure 7.
- Laydown Area Map is attached Appendix A, Figure 9;
- Segment Map is attached as Appendix A, Figure 10.

Digital data files, suitable for importing into a geographic information system (GIS) program are being provided for the Commission staff use under separate cover.

#### **2.3.1 General Route Maps**

The Proposed Routes are shown in Appendix A, Figure 1. Also included is the identification of previously studied routes as shown on the project area map provided as Appendix A, Figure 2.

##### **2.3.1.1 Topographic Maps**

Topographic maps are provided in Appendix A, Figure 3.

##### **2.3.1.2 Maps Showing Land Ownership By Parcel Boundaries**

Provided in Appendix A, Figure 5.

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### **2.3.2 Aerial Photographs**

Orthophotography Maps for all routes are attached as Appendix A, Figure 4.

### **2.3.3 Geographic Information System (GIS) Data**

All information required under Section 2.3.3 is included in the digital submission being provided under separate cover.

### **2.3.4 Zoning**

#### **2.3.4.1 Current Zoning Maps**

Figures identifying zoning plans along all segments are provided in Appendix A, Figure 6.

#### **2.3.4.2 GIS Zoning Data**

Zoning GIS Data projected to Dane County Coordinates, as agreed to by the PSCW staff, for all routes and segments is including in the GIS digital submission being provided under separate cover.

### **2.3.5 Land Use Maps**

Figures identifying land-use plans along all segments are provided Appendix A, Figure 6.

### **2.3.6 Floodplain Maps**

Federal Emergency Management Agency floodplain information is found in Appendix A, Figure 8.

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### **2.4 DETAILED ROUTE INFORMATION**

The potential impacts resulting from the construction of a new transmission line along Alternate Routes 1 and 2 in Wisconsin are discussed and quantified below.

#### **2.4.1 General Route Impacts**

The general impacts of constructing the proposed transmission line along Alternate Routes 1 and 2 have been quantified and are presented in Appendix A, Tables 1 to 4. The results of the impact analysis are described below.

##### **2.4.1.1 Route or Route Segment Information (Table 1A)**

The general route impacts are compiled by route and segment in separate tables for the two routes Appendix A as; Table 1A – Alternate Route 1 and Table 1A – Alternate Route 2. The following information is provided in each table as described below:

###### **2.4.1.1.1 Total Segment Length**

The total lengths for each segment are shown in Table 1A. The total lengths for each route are set out below.

Alternate Route 1: (in Wisconsin) 18,660 feet (or 3.53 miles)

Alternate Route 2: (in Wisconsin) 21,404 feet (or 4.05 miles)

###### **2.4.1.1.2 Length (ft.)**

See Appendix A, Table 1A–Alternate Route 1 and Table 1A–Alternate Route 2 for this information.

###### **2.4.1.1.3 Total Width of ROW**

The proposed ROW widths for the Pleasant Prairie to Zion Energy Center Project were determined by considering the following factors: constructability, existing corridor widths, ATC's minimum ROW width requirements, maintainability, and existing land use. The total width of ROW required for

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both routes are detailed by segment in Appendix A, Table 1A–Alternate Route 1 and Table 1A–Alternate Route 2.

### **Alternate Route 1**

The total ROW width required for Alternate Route 1 is 90 feet for the 345 kV transmission line. Common Segment 1 is partially within an existing transmission line easement of 150 feet. The remaining portion of Segment 1 will require new landowner easements for the entire 90 feet of ROW. The entire lengths of segments 2a, 2b, and 2c are adjacent and parallel to an existing railroad transportation corridor. In addition, Segments 2b and 2c are also parallel to existing transmission line ROW which is located adjacent to and west of the railroad ROW. However, new landowner easements for the entire 90-foot-wide ROW width will be required to accommodate the new 345 kV transmission circuit.

### **Alternate Route 2**

The total ROW width required for Alternate Route 2 is 90 feet for the 345 kV transmission line. Common Segment 1 is partially within an existing transmission line easement of 150 feet. The remaining portion of Segment 1 and all of Segments 4a and 4e have no ROW sharing; new landowner easements for the entire 90 feet of ROW for the new 345 kV transmission circuit will be required. Segments 4b, 4c and 4d will overlap existing road ROW for approximately 54 feet. New landowner easements will be sought to accommodate the remaining 36 feet of ROW for the new 345 kV transmission circuit.

#### **2.4.1.1.4 ROW Area Requirements (acres)**

Alternate Route 1 (western railroad): 38.6 acres

Alternate Route 2 (eastern STH 31/ Illinois State Highway 131): 44.2 acres

#### **2.4.1.1.5 Type of Existing ROW**

The following is a general summary of existing ROW that would be shared by the proposed new transmission line ROW.

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Refer to Table 1A (Appendix A) for a more-detailed summary of ROW sharing for each route and segment.

Both Alternate Route 1 and Alternate Route 2 share a Common Segment 1, located partially on existing 345 kV transmission line 611 ROW. The remaining portion of Segment 1 will require a new 90-foot-wide ROW on new property. The remaining segments on Alternate Route 1 parallel a railroad transportation and transmission line corridor but would require a new 90-foot-wide ROW on new property. Most segments along Alternate Route 2 share ROW in the form of transmission line and road ROW. However, there are two segments along this route that have no existing ROW that would be shared by the proposed transmission line ROW.

### **2.4.1.1.6 Shared Existing ROW Metrics**

The following summarizes the length of existing ROW to be shared with other corridors:

Alternate Route 1 shares existing 345 kV and 138 kV transmission line ROW and railroad transportation corridor.

Alternate Route 2 shares existing 345 kV transmission line ROW and road ROW.

The location and extent of areas within segments that contain multiple corridor sharing are identified in Appendix A, Figure 1 and Appendix A, Table 1A-Alternate Route 1, and Table 1A-Alternate Route 2.

#### **2.4.1.1.6.1 Shared ROW length**

The following summarizes the length of existing ROW to be shared with other corridors:

Alternate Route 1: 17,671 feet (94.70%)

Alternate Route 2: 15,153 feet (70.80%)

#### **2.4.1.1.6.2 Existing ROW Width**

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Alternate Route 1: The existing transmission ROW's vary from 200 feet wide along existing transmission lines 2221, 2222 and 28201 to 80 feet wide along 138 kV transmission line 63141. Existing ROW widths for Segment 1 were estimated in GIS from existing ATC transmission lines using a weighted average (dividing each segment length into 10 equal parts and averaging the measured widths of each part). The existing railroad ROW varies between 68 and 100 feet wide.

Alternate Route 2: The existing transmission ROW is 150 feet wide along the existing 345kV transmission line 611. Existing ROW widths for Segment 1 were estimated in GIS from existing ATC transmission lines using a weighted average. Areas that share road ROW corridors have varying existing ROW. Existing ROW widths for segments 4b, 4c, and 4d were estimated by GIS from 2010 Kenosha County parcel data using a weighted average. Roadway corridors are generally between 156 and 164 feet wide.

### **2.4.1.1.6.3 Width of Existing Shared ROW**

Alternate Route 1: The width of existing ROW that would be shared along Alternate Route 1, Segment 1 varies from 0 to 90 feet. No other ROW width sharing exists along Alternate Route 1.

Alternate Route 2: The width of existing ROW that would be shared along Alternate Route 2, Segment 1 varies from 0 to 90 feet. The existing road ROW along Alternate Route 2, segments 4b, 4c, and 4d that would be shared varies. The existing ROW shared along roadway corridor averages approximately 50 feet and ranges between 7 feet and 90 feet.

### **2.4.1.1.6.4 Area of Existing Shared ROW**

The following summarizes the acreage of existing ROW that would be shared:

Alternate Route 1: 3.04 acres

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Alternate Route 2: 17.72 acres

### **2.4.1.1.7 New (additional) ROW Required**

The Alternate Route 1 would require additional ROW at the locations described in more detail in Section 2.4.1.1.7.1 below.

The Alternate Route 2 would require additional ROW as described in Section 2.4.1.1.7.1 below. For segments that share transmission corridor, the line would be constructed on the existing centerline.

#### **2.4.1.1.7.1 Width (ft.)**

The width of additional ROW required along Alternate Route 1 varies from 0 feet, in a portion of the common Segment 1; to 90 feet in portions of Segment 1; Segments 2a, 2b, and 2c require new additional ROW of 90 feet.

The width of additional ROW required along Alternate Route 2 varies from 0 feet on a portion of the Common Segment 1; to 90 feet in portions of Segment 1; to 36 feet on Segments 4b, 4c and 4d; and 90 feet on Segments 4a and 4e which occur cross country.

#### **2.4.1.1.7.2 Area (acres)**

The following summarizes the area of new ROW required along both routes:

Alternate Route 1: 35.51 acres

Alternate Route 2: 26.50 acres

### **2.4.1.1.8 Corridor Sharing**

The Alternate Route 1 shares existing 345 kV transmission line corridor 611 on a portion of Segment 1. Segments 2, 2b and 2c share an existing railroad transportation and electric transmission corridor.

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The Alternate Route 2 shares existing 345 kV transmission line corridor 611 on a portion of Segment 1. The route also shares road ROW along parts of segments 4b, 4c and 4d.

The values required in Sections 2.4.1.1.8.1 through 2.4.1.1.8.4 were calculated for each segment and are outlined in Appendix A, Table 1A.

### **2.4.1.1.8.1 Percent of new shared ROW length**

This information is provided in Appendix A, Table 1A.

### **2.4.1.1.8.2 Project ROW width shared**

This information is provided in Appendix A, Table 1A.

### **2.4.1.1.8.3 Percent existing ROW width shared**

This information is provided in Appendix A, Table 1A.

### **2.4.1.1.8.4 Percent project ROW width shared**

This information is provided in Appendix A, Table 1A.

### **2.4.1.2 Railroad & Pipeline Corridor Sharing**

Common Segment 1 crosses the Pacific Union Railroad. Alternate Route 1 parallels the Pacific Union Railroad corridor along segments 2a, 2b, and 2c; however, no corridor width sharing occurs. This is an active railroad corridor. Neither route shares ROW with pipeline corridor.

### **2.4.1.3 Interstate or State Highway Corridor Sharing**

Placement of structures in road corridors will only be possible where sufficient space exists between the clear zone (the distance from the edge of the outside traffic lane that must be maintained clear of obstructions as determined by WisDOT) and the edge of the ROW owned by the WisDOT.

In addition to the need to maintain the proper clear zone on highway ROW, placement of structures within the ROW will

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depend on a number of factors, including but not limited to the following:

- Existing structures and other obstructions both within and adjacent to the road ROW.
- Environmental conditions (such as wetlands, streams, threatened and endangered species, and archeological or historical resources) both within and adjacent to the ROW.
- Easements or other legal restrictions existing on the adjacent private property.
- Landowner input.

Shared ROW by segment follows, excluding portions where the segment only crosses a road.

- Segments 4b, 4c and 4d share ROW with State Highway 31.
- Documented discussion with WisDOT is located in Appendix G, Exhibit 4.

### **2.4.1.4 Land Use and Zoning (Table 1B)**

The number of buildings at various distances from the Alternate Route 1 and Alternate Route 2 centerlines was quantified using GIS then field verified, to the extent possible, from ATC's existing ROW and nearby road ROWs. The distances were confirmed by using the ESRI ArcMap program. The results of the building survey are summarized in two tables for each route (Appendix A; Table 1A-Alternate Route 1, Table 1A-Alternate Route 2, Table 4-Alternate Route 1, and Table 4-Alternate Route 2) and are set forward below. There are no buildings within proposed ROW widths. Some buildings will be within the various distance categories. ATC will meet all applicable National Electric Safety Code (NESC) clearances to buildings.

#### **2.4.1.4.1 Number and Type of Buildings**

The number and type of each building within the following distance categories as estimated from the centerline: 0-25 feet, 26-50 feet, 51-100 feet, 101-150 feet, and 151-300 feet was reviewed. Brief descriptions of the results are also provided below:

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### **2.4.1.4.1.1 Homes**

Alternate Route 1 has five (5) single-family residences located within 300 feet of the centerline. No residences are located within 100 feet from the centerline. One (1) residence is located between 101 and 150 feet, and four (4) residences are located between 151 and 300 feet from the centerline.

Alternate Route 2 has one (1) single-family residence located within 300 feet of the centerline. No residences are located within 150 feet from the centerline. One residence is located between 151 and 300 feet of the centerline.

### **2.4.1.4.1.2 Apartments (# units)**

No apartments were observed within 300 feet of the centerline for any segment along either Alternate Route 1 or Alternate Route 2.

### **2.4.1.4.1.3 Schools**

No schools were field observed within 300 feet of the centerline of any segment along either the Alternate Route 1 or Alternate Route 2.

### **2.4.1.4.1.4 Daycare Centers**

Information regarding the location of registered day care providers was obtained from the Wisconsin Department of Workforce Development and from the Child Care Resource and Referral of South Central WI, Inc.

Based on the review of this information, in conjunction with field observations, no daycare facilities or providers are located within 300 feet of the Alternate Route 1 or Alternate Route 2.

### **2.4.1.4.1.5 Hospitals**

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No hospitals were observed within 300 feet of the centerline of the Alternate Route 1 or Alternate Route 2.

### **2.4.1.4.1.6 Commercial/Industrial Buildings**

Appendix A, Table 1B identifies buildings within 100 feet of the centerline for both Alternate Route 1 and Alternate Route 2. Alternate Route 1 has six (6) commercial/industrial buildings located within 100 feet. Alternate Route 2 has three (3) commercial/industrial buildings located within 100 feet.

### **2.4.1.5 Changes to Existing Easements - For each route, by segment, indicate the following:**

#### **2.4.1.5.1 Dates when existing easements were reviewed for this project.**

The existing easements were reviewed between February 14th and February 28th, 2011.

#### **2.4.1.5.2 If existing easements are to be renegotiated and/or rewritten, indicate the reason.**

The easement with Wisconsin Electric Power Company will require revision to reflect a slight change in the route from PLP Switchyard to the east edge of company property.

##### **2.4.1.5.2.1 Modernization of language only**

This section is not applicable.

##### **2.4.1.5.2.2 Changes in size of easement required**

This section is not applicable.

##### **2.4.1.5.2.3 Other reasons**

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This section is not applicable.

### **2.4.2 Detailed Route Impacts by Existing Land Cover**

The potential impacts to existing land cover types resulting from the construction of a new transmission line along Alternate Route 1 and Alternate Route 2 are discussed below.

The land cover along both routes was identified using aerial photography and field observations. Two sources of photography were used including the National Agriculture Imagery Program (NAIP) aeriels from 2010 and photography from flights along the routes taken in April 2010. Data from these sources were verified through field observations when fieldwork was conducted in the fall of 2010 for areas along existing ATC ROW. Fieldwork on existing ROW included wetland delineations and direct land cover observations. Areas that do not contain existing transmission ROW were field checked to the extent possible from road or other public ROWs. The extent of existing land cover along both the Alternate Route 1 and Alternate Route 2 was measured by using ESRI ArcMap.

Appendix A, Table 2, shows length and area values by route segment of the necessary easement widths required to construct the proposed transmission line along the Alternate 1 and Alternate 2 routes, respectively. Land cover impacts were not calculated for the portion of the proposed ROW that overlaps road pavement/gravel or railroad ROW.

The land cover present on the routes and identified in Table 2 includes agricultural lands (Section 2.4.2.1.7.1), non-agricultural lands (Section 2.4.2.1.7.2), and developed lands (Section 2.4.2.1.7.3) as described in more detail below. Agricultural land cover includes active fields, pastures, and recently fallow fields (old field). Fields or other areas with no evidence of recent tillage or agricultural production were not included as agricultural land.

The non-agricultural lands include upland grasslands, upland forest, and wetlands. Most of the grasslands identified along the routes consist of railway and roadway ditches or open fields not in agricultural production. Generally these ditches were dominated with Kentucky bluegrass (*Poa pratensis*) and tall fescue (*Festuca*

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arundinacea). Fields were primarily dominated with meadow fescue (*Festuca pratensis*), smooth brome grass (*Bromus inermis*), Canadian thistle (*Cirsium arvense*), and Queen-Ann's lace (*Daucus carota*). In some cases, these lands contained scattered or limited shrub growth including some honeysuckle (*Lonicera* spp.) and common buckthorn (*Rhamnus cathartica*). Approximately 24% of Alternate Route 1 crosses upland grasslands, of which about 10% consists of existing ROW. Approximately 14% of Alternate Route 2 crosses upland grasslands, of which about 41% consists of existing ROW.

Approximately 4% of Alternate Route 1 crosses upland forest which is made up of entirely new ROW. Approximately 11% of Alternate Route 2 crosses upland forest, of which about 31% consists of existing ROW. Further discussion of the forested lands is included in Section 2.4.6.

The wetlands identified along the routes include forested and non-forested wetland types. Approximately 37% of Alternate Route 1 crosses wetland. Less than 3% of the wetlands on Alternate Route 1 are located within existing ROW. Alternate Route 2 crosses wetland along 13% of the route, about 47% of which is located within existing ROW. The wetlands are described further in Section 2.4.13.

The developed lands located along Alternate Route 1 consist of both residential and commercial/industrial. The residential land is comprised of one rural residence lawn. Approximately 1% of Alternate Route 1 and 0% of Alternate Route 2 are located within residential lands.

The commercial/industrial lands identified along both routes are located along the northern segments of each corridor. These lands are comprised of individual businesses and adjacent grounds. About 31% of Alternate Route 1 and approximately 19% of Alternate Route 2 crosses commercial/industrial lands.

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### **2.4.2.1 Detailed Route Summary Table (Table 2)**

The detailed land cover information is compiled by segment in separate tables for the two routes (Appendix A, Table 2 – Alternate Route 1 and Table 2 – Alternate Route 2). The following information is provided in each table:

#### **2.4.2.1.1 Existing/New ROW Width**

This information is provided in Table 2.

#### **2.4.2.1.2 Existing ROW Width**

This information is provided in Table 2.

#### **2.4.2.1.3 New ROW Width**

This information is provided in Table 2.

#### **2.4.2.1.4 Total Segment Length**

This information is provided in Table 2.

#### **2.4.2.1.5 Length (ft. in each row)**

This information is provided in Table 2.

#### **2.4.2.1.7 Length of Segment Affecting Agricultural, Non-Agricultural, Upland, Wetland & Developed Land Cover Types**

This information is provided in Table 2.

##### **2.4.2.1.7.1 Agricultural Land Cover Types**

Agricultural land cover includes active fields, pastures, and recently fallow fields (old field). Fields or other areas with no evidence of recent tillage or agricultural production were not included as agricultural land. A detailed discussion of these lands is included in Section 2.4.5.

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### **2.4.2.1.7.1.1 Crop Land (row crops, hay)**

The routes cross mostly lands under hay, corn, or soybean production. The following summarizes the length and acreage of cropland within each route:

The summed length of segments that affect cropland on Alternate Route 1 is 4,610 feet which consists of 8.3 acres of new ROW (Segments 2a, 2b, and 2c).

The summed length of segments that affect cropland on Alternate Route 2 is 8,460 feet which consists of 6.9 acres of existing ROW and 10.3 acres of new ROW.

### **2.4.2.1.7.1.2 Pasture**

No pasture lands were observed within either Alternate Route 1 or Alternate Route 2.

### **2.4.2.1.7.1.3 Old Field**

No areas designated as old field were observed within either Alternate Route 1 or Alternate Route 2.

### **2.4.2.1.7.1.4 Specialty**

No specialty crops were observed within either Alternate Route 1 or Alternate Route 2.

### **2.4.2.1.7.2 Non-Agricultural Land Cover Types**

The non-agricultural lands include upland grasslands, upland forest, and wetlands.

#### **2.4.2.1.7.2.1 Upland**

The uplands identified along the routes include prairie/grassland and upland forest, as described below.

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### **2.4.2.1.7.2.1.1 Prairie/Grassland**

Grasslands identified along the routes consist primarily of railway and roadway ditches or open fields (dominated by herbaceous vegetation) not in agricultural production. These areas do not include cleared road ROW. The following summarizes the length and acreage of upland prairie/grassland within each route:

The summed length of segments that affect prairie/grassland on Alternate Route 1 is 4,488 feet which consists of 0.9 acres existing ROW and 8.0 acres new ROW.

The summed length of segments that affect prairie/grassland on Alternate Route 2 is 3,043 feet which consists of 2.4 acres existing ROW and 3.5 acres new ROW.

### **2.4.2.1.7.2.1.2 Upland Forest**

The upland forest areas identified along the routes include those along road, transmission line, and railroad ROW and those areas not located along existing ROW. A detailed discussion of forested lands, including the criteria used to identify forested areas, is included in Section 2.4.6.

The following summarizes the length and acreage of upland forest areas within each route:

The summed length of segments that affect upland forest on Alternate Route 1 is 669 feet which consists of 0 acres existing ROW and 1.4 acres new ROW.

The summed length of segments that affect upland forest on Alternate Route 2 is 2,313

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feet which consists of 1.2 acres existing ROW and 2.7 acres new ROW.

### **2.4.2.1.7.2.1.3 Other**

There are no other non-agricultural land cover types noted on either Alternate Route 1 or Alternate Route 2.

### **2.4.2.1.7.2.2 Wetland**

The wetlands identified along the routes include forested and non-forested wetland types. The wetlands are described further in Section 2.4.13, including the methods used to identify the presence of these features.

#### **2.4.2.1.7.2.2.1 Forested Wetland**

A detailed discussion of forested wetlands, including the criteria used to identify forested areas is located in Section 2.4.6. The following summarizes the length and acreage of forested wetland areas within each route:

The summed length of segments that affect forested wetland on Alternate Route 1 is 1,158 feet which consists of 0 acres existing ROW and 1.6 acres new ROW.

The summed length of segments that affect Alternate Route 2 is 75 feet which consists of 0 acres existing ROW and 0.2 acres new ROW.

#### **2.4.2.1.7.2.2.2 Non-forested Wetland**

All other non-forested wetlands (i.e. wet meadow, shrub-carr, and shallow marsh) are included in this category. The following summarizes the length and acreage of non-forested wetland areas within each route:

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The summed length of segments that affect non-forested wetland on Alternate Route 1 is 5,836 feet which consists of 0.2 acres existing ROW and 5.7 acres new ROW.

The summed length of segments that affect non-forested wetland on Alternate Route 2 is 2,704 feet which consists of 2.4 acres existing ROW and 2.5 acres new ROW.

#### **2.4.2.1.7.3 Developed Land**

The developed lands located along both routes include residential and commercial/industrial lands.

##### **2.4.2.1.7.3.1 Residential**

The residential lands are mostly comprised of scattered residences. The residential length was characterized by the extent of lawns associated with these residences. The following summarizes the length and acreage of residential areas within each route and connector:

The summed length of segments that affect residential lands on Alternate Route 1 is 2,372 feet which consists of 0 acres existing ROW and 0.4 acres new ROW.

There are no residential lands on Alternate Route 2.

##### **2.4.2.1.7.3.2 Commercial/Industrial**

The commercial/industrial lands identified along both routes are generally concentrated in urban areas. Commercial/industrial lands are comprised of individual businesses and adjacent grounds. The following summarizes the length and acreage of commercial/industrial areas within each route:

The summed length of segments that affect commercial/industrial lands on Alternate Route 1 is 5,841 feet which consists of 2.0 acres existing ROW and 9.0 acres new ROW.

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The summed length of segments that affect commercial/industrial lands on Alternate Route 2 is 4,036 feet which consists of 2.9 acres existing ROW and 4.4 acres new ROW.

### **2.4.3 Impacts by Land Ownership – Public & Tribal Lands**

The estimated potential route impacts to public lands are compiled by route and segment in separate tables located in Appendix A as Table 3. The following information is provided in each table as described below:

#### **2.4.3.1 Land Impact Ownership (Table 3) (by route & route segment)**

The estimated potential impacts to public lands are compiled by segment in Table 3 of Appendix A for both Alternate Route 1 and Alternate Route 2. The segment lengths and ROW information contained within this table was generally taken from the General Route Impacts (Section 2.4.1.1). For the purposes of this section, road ROW owned by the WisDOT, county, or local government was not considered public land. The following information is provided in Table 3:

##### **2.4.3.1.1 Existing ROW width (ft.) shared (if any)**

This is the same value reported in Section 2.4.1.1.6.3.

##### **2.4.3.1.2 New ROW width (ft.) required**

This is the same value reported in Section 2.4.1.1.7.1

##### **2.4.3.1.3 Total Segment Length (ft.)**

This is the same value reported in Section 2.4.2.1.4.

##### **2.4.3.1.4 Length (ft.)**

This is the same value reported in Section 2.4.2.1.5.

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### **2.4.3.1.5 Length (ft.) of proposed line passing through the following ownership types:**

#### **2.4.3.1.5.1 Federal Land (by type)**

Alternate Route 1 and Alternate Route 2 do not cross any federally-owned lands.

#### **2.4.3.1.5.2 State Properties**

Alternate Route 1 and Alternate Route 2 do not cross any state-owned lands.

#### **2.4.3.1.5.3 County-owned Land**

Alternate Route 1 and Alternate Route 2 do not cross any county-owned lands.

#### **2.4.3.1.5.4 Village, City or Town**

One Village of Pleasant Prairie parcel and one City of Kenosha parcel are crossed by Segment 2c in Alternate Route 1. These parcels are adjacent to each other and comprise a closed landfill site. One Village of Pleasant Prairie parcel is crossed by segment 4d in Alternate Route 2. This parcel is comprised of a 26 acre wooded open space.

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### **2.4.3.1.5.5 Tribal land and Native American Reservations**

Alternate Route 1 and Alternate Route 2 do not cross any tribal lands or Native American reservations.

### **2.4.4 Route Summary Table (Table 4)**

Information for Sections 2.4.4.1 through 2.4.4.7 is provided in Appendix A, Table 4, which summarizes characteristics of the routes and is also described by route in Sections 2.4.1 and 2.4.2. Tables 1A and 2 (Appendix A) provide further detail of these parameters for each route.

#### **2.4.4.1 Total Route Length (ft.) (from Table 1A)**

Alternate Route 1: 18,660 feet (in Wisconsin)

Alternate Route 2: 21,404 feet (in Wisconsin)

#### **2.4.4.2 Route Length (miles)**

Alternate Route 1: 3.5 miles (in Wisconsin)

Alternate Route 2: 4.1 miles (in Wisconsin)

#### **2.4.4.3 Area of Agricultural Impact (acres) (from Table 2)**

Alternate Route 1: 8.3 acres

Alternate Route 2: 17.2 acres

#### **2.4.4.4 Non-agricultural Upland Impact (from section 2.4.2.1.7.2.1.1 and Table 2)**

Alternate Route 1: 10.3 acres

Alternate Route 2: 9.8 acres

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**2.4.4.5 Area of Upland Forest (acres)**

**2.4.4.5.1 Existing ROW (from Table 2)**

Alternate Route 1: 0 acres

Alternate Route 2: 1.2 acres

**2.4.4.5.2 New ROW (from Table 2)**

Alternate Route 1: 1.4 acres

Alternate Route 2: 2.7 acres

**2.4.4.6 Area of Wetland (acres) (from Table 2)**

Alternate Route 1: 7.6 acres

Alternate Route 2: 5.1 acres

**2.4.4.6.1 Forested Wetlands**

Alternate Route 1: 1.6 acres

Alternate Route 2: 0.2 acres

**2.4.4.6.1.1 Existing ROW**

Alternate Route 1: 0 acres

Alternate Route 2: 0 acres

**2.4.4.6.1.2 New ROW**

Alternate Route 1: 1.6 acres

Alternate Route 2: 0.2 acres

**2.4.4.6.2 Non-forested Wetlands – Existing and New  
ROW Combined (from Table 2)**

Alternate Route 1: 5.9 acres

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Alternate Route 2: 4.9 acres

### **2.4.4.7 Distance to Residences and Apartments (from Table 1B)**

Alternate Route 1: 1 residence between 101 and 150 feet, 4 residences between 151 and 300 feet

Alternate Route 2: 1 residence between 151 and 300 feet

### **2.4.5 Agricultural Information by Segment and Route (Table 2)**

Agricultural land uses were identified using aerial photography and field observations. Two sources of photography were used including the National Agriculture Imagery Program (NAIP) aerials from 2010 and photography from flights along the routes taken in April 2010. Data from these sources were verified through field observations. Fieldwork was conducted in the fall of 2010 for areas along existing ATC ROW. Areas that do not contain existing transmission ROW were field checked to the extent possible from road or other public ROW.

Property classified as being in agricultural use includes active fields, pastures, recently fallow fields (old field), and orchards. Fields or other areas with no evidence of recent tillage or agricultural production were not included as agricultural land.

The amount of agricultural acreage along both the Alternate Route 1 and Alternate Route 2 was measured by using GIS ArcMap. The measurements were compiled and summarized in Appendix A, Table 2 - Alternate Route 1 and Table 2 - Alternate Route 2

Both the Alternate Route 1 and Alternate Route 2 would traverse across land that is presently dominated by agricultural use for crops, pasture, and old field. Alternate Route 1 crosses approximately 8.3 acres of agricultural land, and Alternate Route 2 crosses approximately 17.2 acres of agricultural land. Additional discussion is presented below.

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#### **2.4.5.1 Type of Farming**

The primary farming practice along both routes is row crops, generally hay, corn, and soybeans. Lands used for pasture and fallow fields were not observed along the routes. Because the majority of each route is along existing corridors and farming will be allowed as part of the easement, impacts to existing cropping practices and pastures should be minimal.

Other specialty crops such as ginseng, tree farms, or cranberry bogs were not encountered on either Alternate Route 1 or Alternate Route 2.

#### **2.4.5.2 Potentially Affected Farming Practices**

Potential agricultural impacts of the proposed project will be short term and include temporary construction-related impacts, such as loss of crops, and potential loss of acreage due to structure placement. ATC will minimize these potential impacts by restoring agricultural lands to the extent practicable and also by providing compensation to producers where necessary.

Many of the route segments in agricultural areas are located along fence lines or between fields. Some of the route segments are located along public road ROW, and the proposed structures would be located along the edge of the ROW and the farm field, where practicable. These route siting practices should minimize the loss of tillable land and any problems associated with use of agricultural equipment. If these conflicts occur, ATC will work with property owners during real estate acquisition to accommodate property owner needs to the greatest extent practicable.

No clear evidence of drain tile along either route is apparent from aerial photography, nor was evidence of tile lines observed during the field investigation, although not all areas were accessible to investigation. However, there are areas of farmland that contain hydric soils and are in proximity to ditches, suggesting that tiles may exist in these locations. If tiles do exist along the selected route, breakage from construction vehicles travel may occur. If this occurs, ATC will either compensate the landowner or restore the tiles to pre-construction conditions.

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Based on field observations along accessible routes and aerial photography no center pivot irrigation was identified adjacent to either route.

### **2.4.5.3 Project Affected Parcels Enrolled in Farmland Preservation Program**

No parcels were identified on Alternate Route 1 or Alternate Route 2 which are enrolled in Farmland Preservation Program (FPP). This was confirmed by reviewing the information provided by Racine, Kenosha, Milwaukee USDA-FSA and USDA NRCS Madison FOIA Officer.

### **2.4.5.4 Proximity to Farm Buildings (by Segment and Route)**

Farm buildings located within 100 feet of the proposed centerline were identified for each route. These buildings were identified in a similar fashion to the buildings enumerated in Section 2.4.1.4.

#### **2.4.5.4.1 Building used to house animals**

Alternate Route 1 has one (1) animal building within approximately 35 feet of the proposed centerline. Alternate Route 2 has zero (0) animal buildings within 100 feet of the centerline.

#### **2.4.5.4.2 Metal sheds or equipment storage buildings**

Alternate Route 1 and Alternate Route 2 have no metal sheds or equipment storage farm buildings within 100 feet of the proposed centerlines.

#### **2.4.5.4.3 Provide map of all farm building locations or GIS shape file**

Farm buildings located within 100 feet of the proposed centerlines are provided as a GIS shapefile. This shapefile includes an attribute table that identifies the type of building, segment along which it was identified, and distance measured from the route centerline.

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### 2.4.6 Forest Land Segment and Route Summaries

Forested lands were identified using aerial photography and field observations. Two sources of photography were used including the NAIP aeriels from 2010 and photography from flights along the routes taken in April 2010. Data from these sources were verified through field observations. Fieldwork was conducted in the fall of 2010 for areas along existing ATC ROW. Areas that do not contain existing transmission line ROW were field checked to the extent possible from road or other public ROW.

Forested lands were defined as areas dominated by trees (>20% canopy cover) within 75 feet of the ROW centerlines and running at least 75 feet along the ROW.<sup>2</sup> Narrow tree lines or windbreaks were generally not quantified as forested cover. A summary of forested lands on existing ROW for both routes are included in Appendix A, Table 4. The following generally summarizes the type of forest land along each route. A quantitative evaluation of woodland impacts is provided in Section 2.4.2.1.7.2.

In general, forested uplands along Alternate Route 1 are comprised of trees such as burr oak (*Quercus macrocarpa*), red oak (*Quercus rubra*), silver maple (*Acer saccharinum*), green ash (*Fraxinus pennsylvanica*) boxelder (*Acer negundo*), American elm (*Ulmus americana*) and black cherry (*Prunus serotina*). Forested wetlands along this route are typically dominated by species such as cottonwood (*Populus deltoides*), black willow (*Salix nigra*), boxelder, and green ash.

In general, forested uplands along Alternate Route 2 are comprised of trees such as burr oak, white oak (*Quercus alba*), red oak, shagbark hickory (*Carya ovata*), red maple (*Acer rubra*), sugar maple (*Acer saccharum*), Aspen (*Populus sp.*), basswood (*Tilia americana*), Austrian pine (*Pinus nigra*), American elm, cottonwood, boxelder, black cherry and green ash. Forested wetlands along this route are typically dominated by species such as black willow, cottonwood, American elm, boxelder, and green ash.

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<sup>2</sup> The 75-foot figure is a more conservative figure than the 5-acre minimum size defined in the US Forest Service Silvicultural Handbook (FSH 2409.26d), and the canopy coverage is based on the EPA, NRCS, and USDA guidelines for defining land cover ([http://www.epa.gov/mrlc/Implmnt\\_plan.htm#Def](http://www.epa.gov/mrlc/Implmnt_plan.htm#Def)).

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In instances where forest land occurs along both routes, tree removal will be required in portions where they extend into the proposed ROW. In such areas, shrubs and other low-growing vegetation will be allowed to reestablish after construction is complete.

### **2.4.6.1 Land enrolled under the Managed Forest Law (MFL)**

No MFL lands are located within or adjacent to Alternate Route 1 and Alternate Route 2 (Source: WDNR April, 2010).

### **2.3.6.2 Land enrolled under the Forest Crop Law (FCL)**

No FCL lands are located within or adjacent to Alternate Route 1 and Alternate Route 2 (Source: WDNR April, 2010).

### **2.4.7 Conservation Easements**

No conservation easements have been identified thus far in this project.

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### **2.4.8 Endangered, Threatened, or Special Concern Species and Natural Communities**

Information concerning the presence of rare species (threatened, endangered, or special concern) within two miles of the project site was obtained through a review of the Wisconsin Natural Heritage Inventory (WNHI) database by licensed environmental staff of ATC and its consultant, GAI. The WNHI historical database notes the presence of two threatened species within a two mile radius of the project site; these species occurrences do not, however, overlap with the Alternate Route 1 and Alternate Routes 2. The WNHI non-historical database notes the presence of eleven threatened, endangered, or special concern species and three natural communities within two miles of the proposed routes. One species occurrence is contiguous with the Alternate Route 1 and Alternate Route 2.

Subsequent to review of the existing WNHI data, where field access was available, GAI conducted in-field habitat characterization within and adjacent to the proposed routes. Along segments where field access was not available, GAI conducted the habitat characterization based on aerial photographs and targeted in-field verification from accessible public ROWs. This habitat characterization information was compared with the WNHI database to evaluate the likelihood that the WNHI-listed species would be found within or in close-proximity to the routes.

During the in-field habitat characterization, none of the listed species were observed. Because this habitat characterization is not equivalent to a species survey, it is not assumed that the listed species are not present.

During consultation with the WDNR, one reptile species was identified that may require a species survey. A comprehensive habitat characterization was provided to the WDNR in June 2010 which identified those areas where suitable habitat may exist. Additionally, the WDNR recommended surveys for rare plant species. A comprehensive habitat characterization for rare plant species was completed, and a rare species survey plan was developed and provided to the WDNR. Following any required species surveys, ATC will consult with the WDNR to develop avoidance measures as necessary.

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Since Alternate Route 1 and Alternate Route 2 tend to run through agricultural land and follow railway and road edges, which are subject to frequent disturbance, observed habitat quality was generally poor. Consequently, the risk of direct impact to any of the species identified within two miles of the proposed project, or substantial indirect impact to their suitable habitat, from construction of the proposed transmission line appears minimal. Once a route has been selected, if necessary, ATC may survey the areas with potentially suitable habitat and implement avoidance measures, if a species is subsequently identified. ATC's standard construction techniques should result in minimal ground disturbance, and the change to existing habitat conditions from the resulting poles and wires would be negligible. If for some reason avoidance measures cannot be implemented, ATC will provide supplemental information required for the issuance of an Incidental Take Authorization.

A report describing the methods and results of the Threatened, Endangered, and Special Concern species investigation was submitted to the WDNR Office of Energy for review and comment. A copy of the cover letter submitted with the rare species report and the redacted version of the TES report is located in Appendix K, Exhibit 1.

There are no State Natural Areas located in the vicinity of either the Alternate Route 1 or Alternate Route 2 corridors.

### **2.4.9 Archaeological and Historic Resources**

Great Lakes Archaeological Research Center (GLARC), on ATC's behalf, has conducted an archival and literature review of the project area, included in Appendix K, Exhibit 2. This report identified 98 previously reported archaeological and burial sites within 1 mile of the Project area. Of these sites, two are within Alternate Route 2. Additionally, Alternate Route 2 is adjacent to, but outside of Oakdale Cemetery.

The potentially impacted sites are:

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Site 47KN0199, Jambeau Trail, is a Native American trail, located in Town 1 North, Range 22 East, Section 27. Excavations in 2000 revealed that the trail is still present. The site is reported to be in the 'Old Dexter Woods', about 200 feet west of STH 31. The site crosses Alternative Route 2 and may be coincident with Structure 214.

Site 47KN0239, New York Times site, is a scatter of historic material and a broken projectile point find site located in Town 1 North, Range 22 East, Section 27. The site is located west of STH 31 and 2800 feet north of the intersection of STH 31 and STH 173. It does not appear that there are structures located within the site's boundaries.

ATC is proposing to conduct construction in such a manner that the cemetery will not be negatively impacted. Upon final line design, archaeological surveys will be undertaken to ensure that all identified sites found to be within the ROW are properly protected.

### **2.4.10 Airports Potentially Affected by Project**

The Kenosha Regional Airport is greater than three miles from the project area and therefore does not present any conflict with the height limitation zoning ordinance. There are no other Wisconsin public airports within a 5-mile radius of the project.

Permits from the FAA or the Bureau of Aeronautics are not expected to be needed for the construction of the proposed line. Any required notifications to the agencies will be made.

### **2.4.11 Off ROW Construction Access Issues**

Alternate Route 1 traverses through private property with the exclusion of road crossings, one City of Kenosha parcel, and one Village of Pleasant Prairie parcel. Portions of Segment 1 are located within existing transmission line ROW's. The remaining portion of Segment 1, and Segments 2a, 2b, and 2c require new ROW on private lands. For all segments, ATC is proposing to directly access the ROW from public roadways.

Alternate Route 2 traverses through private property and road ROW with the exclusion of one village of Pleasant Prairie parcel located

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along Segment 4d. Portions of Segment 1 are located within existing transmission line ROW's. The remaining portions of Segment 1, and Segments 4a and 4e will require new ROW on private lands. Segments 4b, 4c, and 4d, share ROW with road ROW. ATC is proposing to directly access the ROW from public roadways. A preliminary Environmental Features and Access Plan for each of the two routes is presented in Appendix A, Figure 7.

Both routes cross waterways and wetland areas. On Alternate Route 1, seven (7) waterways are located within the ROW. Three (3) of these waterways are currently crossed by existing transmission lines. Unnamed streams depicted in the WDNR hydrolayer, which were field verified not to exist, are not included.

Of the seven (7) waterways located on Alternate Route 1, a total of three (3) will require a temporary crossing for equipment access purposes. Temporary clear span bridges will be utilized for each of these crossings. Specialized equipment may be used to traverse steep grade areas, if other access to these locations cannot be obtained. The remaining four (4) waterways will not require a temporary crossing. Potential impacts to these streams will be minimized by using appropriate erosion control measures and by prohibiting vehicular access.

On Alternate Route 2, seven (7) waterways are located within or adjacent to the ROW. Two (2) of these waterways is currently crossed by existing transmission lines. Unnamed streams depicted in the WDNR hydrolayer, which were field verified not to exist, are not included.

Of the seven (7) waterways located on Alternate Route 2, a total of two (2) will require a temporary crossing for equipment access purposes. Temporary clear span bridges will be utilized for each of these crossings. Specialized equipment may be used to traverse steep grade areas, if other access to these locations cannot be obtained. The remaining waterways will not require a temporary crossing. Potential impacts to these streams will be minimized by using appropriate erosion control measures and by prohibiting vehicular access.

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Upon approval of a transmission line route, the preliminary access plan may be amended based on negotiations with local landowners and/or contractor requirements. For both routes, off-ROW access will be pursued to minimize potential environmental impacts associated with temporary stream crossings, wetland crossings, or other sensitive resources.

Access from existing public ROWs may require the installation of culverts to cross roadside ditches. Access methods may also include the use of ice roads, dry or frozen conditions, low ground pressure equipment, or construction mats. The goal of these alternative construction access methods is to prevent or minimize the temporary construction-related ground disturbances in order to reduce the potential for creating conditions that would be conducive to introducing non-native plants or disrupting desirable plant communities.

### **2.4.12 Waterway Permitting Activities**

A summary of all waterways intersecting Alternate Route 1 and Alternate Route 2 is presented in the Environmental Inventory Table located in Appendix E, Exhibit 2, Table 2. ATC anticipates needing permit approval (*Wis. Stat.* § 30.123) to temporarily cross streams along both routes. ATC is seeking approval to cross these streams with temporary clear span bridges (TCSB). This regulated activity is listed in Appendix E, Table 1 (Supplement to Form 3500-53). Additionally, the photos for each crossing are included in Appendix E, Exhibit 2 Pages 37 through 51.

Proposed temporary stream crossings have been minimized by utilizing access from either side of the stream or by existing public road ROW. ATC will work with private landowners to identify alternate access routes to further minimize the use of stream crossings, if possible. Some of these crossings may not be required if ATC is able to secure alternate access via private landowners. However, ATC has requested the issuance of a permit for all potential crossings in the event that avoidance is not possible.

Construction along Alternate Route 1 would utilize up to three (3) TCSB crossings. These include three (3) unnamed stream crossings within Segment 2c. Construction along Alternate Route 2 would cross waterways at existing roadway crossings for Segments 4c and

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4d. Segment 4e would utilize up to two (2) TCSB crossings. These include two (2) unnamed stream crossings within Segment 4e. None of the proposed crossings are defined by the WDNR as Areas of Special Natural Resource Interest.

### **2.4.13 Wetlands and Wetland Crossings**

#### **2.4.13.1 Wetland Maps using WDNR WWI Information**

ATC's environmental consultant, GAI, completed wetland delineations within existing transmission line and road ROW on both Alternate Route 1 and Alternate Route 2, primarily between September and November of 2010. The wetland delineations were completed in the field using the criteria and methods outlined in the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE 1987), Interim Regional Supplement to the Corps of Engineers 1987 Wetland Delineation Manual: Midwest Region (2008), subsequent guidance documents (USACE 1991, 1992), Guidelines for Submitting Wetland Delineations in Wisconsin to the St. Paul District Corps of Engineers (USACE 1996), and the Basic Guide to Wisconsin's Wetlands and their Boundaries (Wisconsin Department of Administration Coastal Management Program 1995).

The field delineated wetland boundaries were mapped using a Trimble GeoXT global positioning system (GPS) unit (sub-meter accuracy). Field delineated wetlands are shown in yellow on the Environmental Features and Access Plan, Appendix A, Figure 7. The Wetland Delineation Report is available under separate cover.

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### **2.4.13.2 Alternative Wetland Identification Methods (in lieu of WWI data)**

Field access was limited to the existing transmission or road ROW along both routes. The wetland boundaries were extended beyond these existing corridors where additional ROW is required. For areas extending outside the existing ROW, the wetland boundaries were conservatively estimated by interpretation of aerial photographs (April 2010 ATC/Kenosha County 3 Inch Resolution), soil survey, Wisconsin Wetland Inventory (WWI) maps, and field observations. For shared ROW segments, these boundaries were sketched onto aerial photographs in the field. Where possible, these boundaries were field identified by using offset points with the GPS unit (up to a distance of about 50 feet from the edge of ROW). The determined wetlands were digitized on aerial photos and are labeled as “visually observed” and “remotely observed”, shown in orange and blue, respectively, within the Environmental Features and Access Plan, Appendix A, Figure 7. Visually observed wetlands include wetlands that could not be delineated resulting from access restrictions; however due to their proximity to existing transmission and road ROWs, their presence was confirmed through field observations. Remotely observed wetlands could not be confirmed in the field due to their separation from existing transmission and road ROWs. Their boundaries were defined using available remote resources as described above.

### **2.4.13.3 For each Wetland Crossed by the Project (Length, Type and Invasive Species Presence)**

Wetlands exist along both Alternate Route 1 and Alternate Route 2 that would need to be crossed during transmission line construction. A preliminary Environmental Features and Access Plan is discussed in Section 2.4.11 and provided on Figure 7 of Appendix A. The anticipated structure locations and wetland crossings are summarized in an Environmental Inventory Table for each route (Appendix E, Table 2). The table includes the characteristics of wetlands along both routes, including the WWI index, and presence and dominance of invasive species.

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Based on preliminary route designs, it appears that a total of five (5) structures (numbered 7, 11, 19, 20 and 21) along Alternate Route 1 would need to be placed in wetlands. All five of the structures along Alternate Route 1 would need to be placed in wetlands. All five of the structures are 345 kV tangent vertical steel pole types; one (1) structure is located in Segment 2a, one (1) in Segment 2b and three (3) in Segment 2c. This Structure #220 is a 345 kV small-angle vertical steel pole located in Segment 4d. Preliminary designs were developed to minimize impacts to wetlands to the extent possible. Because of span length requirements and ROW limitations, some impacts to wetlands are unavoidable.

### **2.4.13.4 Identify Sensitive Wetlands (14 categories in table format)**

The majority of wetlands inventoried are emergent / wet meadows, primarily located in railroad and roadside ditches within or adjacent to the proposed routes. These low quality wetlands have formed as a direct result of the historic disruption of natural drainage and road and railroad construction installation activities. Vegetation within these wetlands consists primarily of fast growing invasive species, such as common reed grass (*Phragmites australis*) and reed canary grass (*Phalaris arundinacea*). Specific characteristics of wetlands along Alternate Route 1 and Alternate Route 2 are summarized in Appendix E, Table 2.

#### **2.4.13.4.1 Cold Water Community (as defined in Wis. Adm. Code, § NR 102.04(3)(a))**

There are no cold water communities within either Project Route.

#### **2.4.13.4.2 Lake Michigan and Superior and the Mississippi River**

Lake Michigan and Superior and the Mississippi River will not be impacted by this Project; therefore this section is not applicable to the Project.

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### **2.4.13.4.3 State- or Federally-designated Wild and Scenic River**

There are no state– or federally– designated Wild and Scenic Rivers within either Project Route.

### **2.4.13.4.4 State-designated riverway**

There are no state-designated riverways within either Project Route.

### **2.4.13.4.5 State-designated urban waterway**

There are no state-designated urban waterways within either Project Route.

### **2.4.13.4.6 Environmentally sensitive area or environmental corridor identified in an area-wide water quality management plan, special area management plan, special wetland inventory study, or an advanced delineation and identification study.**

The Southeastern Wisconsin Regional Planning Commission (SEWRPC) defines Environmental Corridors as elongated areas in the landscape that encompass most of the best remaining woodland, wetlands, prairie, wildlife habitat, and surface water and attendant, floodlands and shorelands, together with many related historic, scenic, and recreational sites. Portions of Alternate Route 1 and Alternate Route 2 are located within areas designated as Secondary Environmental Corridors. Secondary environmental corridors are concentrations of significant natural resources at least 100 acres in area and at least one mile in length. Portions of Segment 2c on Alternate Route 1 and portions of Segments 4c, 4d and 4e on Alternate Route 2 are located or adjacent to areas of Secondary Environmental Corridors. Preliminary designs were developed to minimize impacts to environmental corridors to the extent possible. Because of span length requirements and ROW limitations, some impacts to environmental corridors are unavoidable.

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### **2.4.13.4.7 Calcareous fen**

There are no calcareous fens within either Project Route.

### **2.4.13.4.8 State park, forest, trail or recreational area**

There are no state parks, forest, trail, or recreational areas within either Project Route.

### **2.4.13.4.9 State and Federal fish and wildlife refuges and fish and wildlife management area**

There are no state or Federal fish and wildlife refuges or wildlife management areas within either Project Route.

### **2.4.13.4.10 State- or federally-designated wilderness area**

There are no state- or federally–designated wilderness areas within either Project Route.

### **2.4.13.4.11 State-designated or dedicated natural area (SNA)**

There are no state-designated or dedicated natural areas within either Project Route.

### **2.4.13.4.12 Wild rice water listed in § NR 19.06 *Wisc. Adm. Code***

There is no wild rice water as listed in *Wisc. Adm. Code* § NR 19.06 within either Project Route.

### **2.4.13.4.13 Surface water identified as outstanding or exceptional resource water listed in ch. NR 102 *Wisc. Adm. Code***

There are no surface waters identified as outstanding or exceptional resource water as listed in ch. NR 102 *Wisc. Adm.* within either Project Route.

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**2.4.13.4.14 Other sensitive wetlands are deep marsh, northern or southern sedge meadow not dominated by reed canary grass, wet or wet-mesic prairie not dominated by reed canary grass, fresh wet meadows not dominated by reed canary grass, coastal marsh, interdunal or ridge or swale complex, wild rice-dominated emergent aquatic, open bog, bog relict, muskeg, floodplain forest, and ephemeral ponds in wooded setting**

See Appendix E Table 5 (Environmental Inventory Table) for additional wetland descriptions.

### **2.4.14 Mapping Wetland and Waterway Crossings**

Wetland and waterway crossing maps for Alternate Route 1 and Alternate Route 2, containing information as defined in Sections 2.4.14.1 through

2.4.13.3, are provided in Appendix A.

#### **2.4.14.1 Recent Air Photo (line & ROW only)**

Recent aerial photography of Alternate Route 1 and Alternate Route 2, including the centerline and ROW only, are included in Appendix A, Figure 5.

#### **2.4.14.2 Topographic Map showing line and ROW**

A topographic Map showing the centerline and ROW of both Alternate Route 1 and Alternate Route 2 is included in Appendix A, Figures 3.

#### **2.4.14.3 Recent Air Photo with the following items**

A map of Alternate Route 1 and Alternate Route 2, including the information required in Section 2.4.14.3.1 through Section 2.4.14.3.10, is included in Appendix A, Figure 7.

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## **2.5 CONSTRUCTION METHODS**

### **2.5.1 General Construction Information**

The following describes ATC's practices and procedures used in overhead transmission line construction. See Section 2.6.7 for additional discussion related to substation construction.

#### **2.5.1.1 Type and Location of Structures**

The project is proposed as a primarily single-circuit 345 kV transmission line. See Section 2.1.2 in the Introduction and Overview section of this document for a description of the expected structure type to be used for various segments of the transmission line route, depending on the route chosen by the Commission.

Steel monopole vertical-configuration structures are proposed for the Project. A table listing the existing and proposed structure types by line Segment is located in Appendix D, Figure 10.

Foundations for all steel structures will be concrete caisson, unless an equally suitable, more economical foundation type is feasible given the prevailing soil conditions. Foundations are required to provide the necessary strength for the structures to enable them to resist the large overturning reactions due to the heavy conductor loads.

#### **2.5.1.2 Disposition of Existing Structures**

One structure on Segment 1 will be removed and disposed of by the construction contractor.

#### **2.5.1.3 Method of Structure Placement**

After the foundation is installed, the sections of the structure are assembled and put into place using a crane. The insulator strings may already be in place on these structure sections, or they may be installed just prior to conductor installation.

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#### **2.5.1.4 Concrete Foundation Type (size & depth)**

The method of installation, diameter and depth of the excavation will vary depending on the soil capability and structure loadings. Excavation is required for all structures, whether direct-embedded or requiring a foundation. The depth of the excavated hole (and therefore, the amount of excavated material) depends on the soil conditions encountered at the proposed structure location. All spoils from excavations will be hauled off site. Wetland spoils will be contained on tarps before being loaded for removal. In any area where conditions may be conducive to erosive losses (erodible soils, slopes, wetlands or streams adjacent to site), appropriate erosion control measures as described in the WDNR Construction Site Best Management Practices will be installed and maintained until final restoration and re-vegetation is complete.

For direct-embedded poles (no foundation required), a hole is excavated to the appropriate depth. The base of the structure is placed into the excavated hole, and the area around the pole is backfilled with clean granular fill (typically gravel) to within one foot of the surface. The balance (top 12 inches) of the excavation is backfilled with native soils.

For structures requiring a foundation, the required hole is excavated. Concrete caissons are formed using a rebar cage and anchor bolts and placed into the excavation. The excavation is then filled with concrete to a point where the rebar cage and anchor bolts are covered leaving only the threaded bolts exposed. The complete caisson is allowed to cure for approximately one week to develop necessary strength. After the caisson is cured, the steel pole structure is mounted to the caisson using the exposed bolts. In general the excavated holes will range from 6 to 10 feet in diameter and may be 20 to 40 feet in depth, or greater.

#### **2.5.1.5 Type of Machinery**

Construction equipment typically used in transmission line construction is expected to be utilized on this project, including digger and bucket trucks, cranes (small and large), a high-pressure drill rig, mat trucks, backhoe, dump trucks, dozers, line

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puller, line tensioner pick-up trucks, utility trailers (small and large), semi-tractor and trailers and related equipment.

### **2.5.1.6 Width of Construction Disturbance Zone**

Construction will be confined to the ROW and along access routes. ATC will utilize existing roads, ROW, and/or arranged access locations where roadways are not present. Most disturbances will likely occur in the area immediately surrounding transmission line structures. This area will vary based on the size of the structure and therefore the size of the equipment needed to construct it, but typically will be an approximate 60-foot by 60-foot work space area surrounding the structure location. In areas where access cannot be gained from existing roads, some disturbance from vehicular traffic may also occur. Disturbance at these areas may include clearing of vegetative cover, soil compaction, vehicular tracking, and some topsoil disturbance. An access path of approximately 16 feet will be needed; however, there may be areas where a greater width is needed to allow for two lanes of construction traffic.

### **2.5.1.7 Staging Areas**

ATC has selected the PLP Switchyard located at 8000 95th Street, in the village of Pleasant Prairie, Kenosha County, WI as its designated laydown or staging area. A site map is provided in Appendix B, Figure 4. Additional description of the environmental impacts in laydown areas is located in Section 2.5.7.

### **2.5.1.8 Describe Construction Methods (particularly if in one of the following:**

ATC will cooperatively develop an Environmental Features and Access Plan (EAP) working with the construction contractor for the project. The purpose of this EAP is to serve as a guidance document for persons working on the ROW to ensure understanding of and compliance with permit conditions, CPCN Order Points, ATC requirements, landowner agreements, and any other applicable federal or state requirements.

The EAP will provide site specific information regarding the implementation methods used to minimize impacts and comply

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with regulatory and other requirements. The EAP may include maps indicating structure locations, ATC approved access routes and construction techniques and land owner information as appropriate. The EAP will address sensitive resources described in Section 2.4 as appropriate, and will be developed using information provided in applicable sections 2.4, 2.5, 2.6, and Appendix E of this application. For example, the EAP may address standard construction techniques in wetlands and around waterways and waterway crossing locations, protected species protocols, archaeological resource protection methods, and erosion control techniques, as applicable to the project. In addition, this document may incorporate plans for construction activities, including materials management, invasive species management, dewatering, and type of field marking and staking used for the project, restoration, and waste management, and spill prevention and contaminant cleanup plans as applicable to this project.

Site specific information and permit requirements are needed to fully develop the EAP, consequently, it will be developed after a final route has been selected and prior to construction. The primary purpose of the EAP is to provide guidance to field personnel. However, it can be made available to PSCW and WDNR upon request.

### **2.5.1.8.1 Agricultural lands**

Agricultural areas infrequently occur along both routes. In agricultural areas, ATC will use general upland construction procedures utilizing standard construction equipment. These construction practices will conform to Best Management Practices to minimize environmental impact (e.g., soil erosion). The Environmental Features and Access Plan provided in Appendix A, Figure 7, has been designed to reduce impacts to wetlands and waterways; however, ATC will work with landowners to minimize impacts to agricultural lands where possible. For example, ATC will strive to access structure locations using the ROW and public roads. Landowners will be compensated for crop and other damages arising from construction activity consistent with the terms in the property easements.

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American Transmission Company does not anticipate that Agricultural Protection measures will be required. ATC assumes that protection measures are only required in areas that have livestock or practice organic farming. A review of the 2010 Certified Organic Farm Mailing list provided by the Department of Agriculture Trade and Consumer Protection and United States Department of Agriculture National Organic Program data base confirmed there are no organic farms on either Alternate Route 1 or Alternate Route 2. Additionally, no livestock were field observed along either route. However, what appears to be a small horse farm is located along Alternate Route 1. A small shed (i.e. could house 1 or 2 horses), horse corral, and pasture were observed. ATC will work with potentially affected agricultural landowners to ensure that, in the event farm disease mitigation is currently practiced by the landowners, mitigation plans will be adhered to during construction of the transmission line.

Costs associated with farm disease mitigation practices vary widely depending on the practices employed. Some assumptions about the cost of farm disease mitigation were included in Section 2.1.7.3.3; however, these may need to be reviewed and updated based on discussions with individual landowners after a route is selected.

#### **2.5.1.8.2 Forestlands**

To accommodate transmission line construction, vegetation will be cleared for the full width of the ROW to the extent necessary. This allows safe ingress and egress of construction equipment, and ensures safe clearances between vegetation and the transmission line once construction is complete.

Vegetation will be cut at or slightly above the ground surface. Root stocks will be left in place to regenerate after construction, except in areas where stump removal is necessary to facilitate the movement of construction vehicles along the ROW or placement of structures. Re-growth of tall-growing species under the transmission line will not be allowed. Where permission of the landowner has been obtained, stumps of tall-growing species will be treated with an herbicide to discourage re-growth. The disposition of trees

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of commercial or other value will be negotiated with the landowner prior to the commencement of land clearing and included in the easement agreement.

Vegetation clearing will be completed in accordance with the

Commission restrictions on oak tree cutting and pruning as specified in *Wis. Adm. Code* § PSC 113.0511.

### **2.5.1.8.3 Surface waters and wetlands**

Construction activities typically will not take place on the stream banks or close to the water, other than cutting or trimming trees that exceed the maximum height limit and placement of temporary clear span bridges. In-stream use of heavy equipment will not be required on this Project.

#### Waterways

To the extent practicable, temporary stream crossings will be avoided by utilizing existing bridges or culverted crossings or by accessing riparian areas from nearby roads on either side of a stream. Where necessary and authorized by the WDNR, TCSB crossings will be placed to avoid in-stream disturbance. (See Appendix A, Figure 7, for anticipated locations of TCSB crossings.) Each TCSB will consist of construction mats placed to span the stream banks. Mats will be laid parallel to the channel on each stream bank followed by mats laid perpendicular to the channel. If a ramp onto the bridge is needed, wood logs or similar materials will be used. It is anticipated that no off-site fill will be used for the construction of access ramps. Preparation for setting the bridge may include minor blading and excavation confined to the minimum area necessary for safe TCSB installation. The bridge will be anchored to the ground or a nearby tree to prevent the potential transport of the bridge downstream during flood flows. All equipment used to install the TCSB will be properly sized to minimize the amount of sediment that can escape into the water. In addition, it is not anticipated that the equipment used to place the TCSB will be used below the banks of the waterway. NR 320 .06(1)(c)15 requirements to prevent the spread of invasive species and viruses will be

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implemented as necessary. The removal of trees, shrubs and other shoreline vegetation above the ordinary high water mark will be minimized to the greatest extent possible and accumulated brush, debris or other obstructions that are trapped in or underneath the TCSB will be regularly removed to prevent upstream flooding and to maintain the integrity of the TCSB. A TCSB cross-section drawing is located in Appendix D.

TCSB construction shall be conducted in a manner which minimizes disturbances to the extent practicable and which meets or exceeds Construction Site Erosion and Sediment Control Technical Standards and ATC's Construction Standards, as applicable. Proper erosion control measures will be maintained during and after the utilization of the temporary crossing.

### Wetlands

No permanent fill placement is proposed for wetland access routes. When wetland access is required, disturbance to wetlands will be reduced by implementation of several specialized construction techniques, which may include timing wetland construction during dry or frozen conditions and the use of low ground pressure tires, specialized track vehicles, and/or matting materials to help minimize soil and vegetation disturbances. Large foundation auguring equipment, heavily loaded trucks, cranes, and specialized line construction equipment must access structure locations. If necessary, pre-fabricated construction mats would be used to spread the concentrated axle loads from this equipment over a much larger surface area thereby reducing the bearing pressure on fragile soils.

### **2.5.2 Underground Construction Details (if applicable)**

No underground transmission line construction is proposed as part of this project. All proposed transmission lines will be above ground.

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### **2.5.3 Perennial or Intermittent Stream/River Crossings**

#### **2.5.3.1 Method of Crossing including structure type**

Temporary bridge crossings are proposed to cross streams as identified in Section 2.4.12 and Appendix E, Exhibit 2. Drawings of a typical crossing method and photographs of the crossing locations (where access for field investigation was available) are also provided in Appendix E. Refer to Section 2.5.1.8.3 for a further discussion of TCSB crossing methods.

#### **2.5.3.2 Excavated Materials (area & volume)**

Except for minor blading that may be required to properly stabilize the bridge, excavation is not anticipated to be required for the waterway crossings.

The volume of excavated upland materials is dependent upon the specific route chosen and site characteristics such as topography, soils, etc.

#### **2.5.3.3 Access Roads associated with placing temporary bridges**

Temporary bridge crossings will be located within the ROW or other areas with proper permission. Construction access to the bridge locations will be gained in the same manner as access within the ROW, as described in Section 2.4.11.

#### **2.5.3.4 Boring Pits (underground construction only)**

This section is not applicable as no underground construction is planned for the Project.

### **2.5.4 Wetland Crossings**

The information for wetland crossings on Alternate Route 1 and Alternate Route 2 is provided in Section 2.5.4.1 through 2.5.4.3.

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### **2.5.4.1 Methods for crossing wetlands including locations and methods of construction:**

Wetlands occur along Alternate Route 1 and Alternate Route 2. Access through many of these wetlands will be required during transmission line construction. Methods that may minimize the impact associated with access include, but are not limited to: ice roads, low ground pressure equipment, construction mats, temporary access roads, and restricting the length and width of the access path. The locations and access within these wetlands is discussed in Section 2.4.12.

The following summarizes construction techniques that can be utilized for crossing wetlands. The construction technique identifiers (i.e., CT-2, CT-3) are used to indicate the crossing method in the Environmental Inventory Table provided in Appendix E, Tables 2A and 2B.

#### **CT-2: Unstable Soil Conditions**

If saturated or unstable soil conditions exist at a construction location, several construction techniques may be implemented to reduce the effects on wetland soil structure and dependent functions, including hydrology and the wetland's capacity for re-vegetation of native species. These techniques include the use of the following: construction during frozen conditions, the use of ice roads, construction mats, low ground pressure or tracked vehicles in areas where the soils are saturated or not frozen, and TCSBs installed in wetlands that contain cross-cut channels.

#### **CT-3: Stable Soil Conditions**

If the wetland to be crossed has drier, stable, and cohesive soils or is frozen, construction will proceed in a manner similar to upland construction. If the wetland soils are not saturated at the time of construction and can support both tracked and/or rubber-tired equipment, ATC will construct in that area using construction mats only when needed to minimize impacts.

#### **CT-4W: Wire Handling/Stringing - Wetlands**

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Wire handling and stringing will still be necessary in wetlands where heavy equipment crossing is restricted. This method would be used for wetlands identified as having special resources needing additional protection and where access across the wetland would be available from the existing ROW. For CT-4W wetland crossings, use of heavy equipment will be restricted. Smaller vehicles, such as a small tracked vehicle or an all-terrain vehicle may be used to pull the line through the wetland. Construction traffic will be limited, and in addition, construction mats will be used if necessary.

### **2.5.4.1.1 Crossing structures**

See Section 2.5.4.1 above.

### **2.5.4.1.2 Access roads**

See 2.5.4.1 above

### **2.5.4.2 Methods of Preventing the Spread of Invasive Species**

ATC will follow the *Wis. Adm Code* ch. NR 40 invasive species rule and implement WDNR Best Management Practices (BMPs) to comply with the applicable rules.

If it is evident that transmission line construction activities could spread invasive plant species to new areas, appropriate protection measures will be implemented. These measures include: avoidance of infested areas, removal or control of small populations of plants, scheduling construction activities during the plant's dormant period, covering the plants while construction is occurring in the area, and cleaning of equipment prior to accessing uninfested areas. In areas where the existing ROW and new ROW are not both dominated by the same invasive species, clearing activities will occur such that mowing of the existing ROW will take place prior to clearing activities of the new ROW. Clearing activities would not move from the existing ROW area into the new ROW area, without first cleaning the equipment to remove traces of invasive species.

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### **2.5.4.3 Estimated Quantity of Excavated Materials from Wetlands**

The following unavoidable wetland impacts for structure placement would occur along Alternate Route 1:

Five (5) structures are planned within or immediately adjacent to wetlands, as shown in Appendix E, Table 1. The estimated permanent wetland impact associated with the installation of the transmission line structures is approximately 354 square feet or 0.0081 acres.

The following unavoidable wetland impacts for pole placement would occur along the Alternate Route 2:

One (1) structure is planned within or immediately adjacent to wetlands, as shown in Appendix E, Table 1. The estimated permanent wetland impact associated with the installation of the transmission line structures is approximately 78.5 square feet or 0.0018 acres.

For pole placement in wetlands, the estimated area of excavation includes up to 78.50 square feet, and the volume of excavated material will range from about 500 to 5000 cubic feet at each structure location. Material not required for backfilling will be spread in an upland area within the ROW or placed in an upland location. If there is a large amount of excess soil, other appropriate disposal methods will be evaluated.

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#### **2.5.4.4 Methods and Discharge Locations for site Dewatering, and Locations for Stockpile of Fill Materials**

The presence of groundwater at or near the ground surface can impact construction procedures when augering holes for new structures. If groundwater flow into excavations results in the excavation becoming unstable, it is often necessary to support the walls of the excavation and/or dewater the excavation site. Dewatering of groundwater will be done in a method that meets the requirements of the WDNR Utility Permit. Refer to Section 2.5.8 for further discussion of dewatering methods.

The only fill required in wetlands for which ATC seeks authorization will be for the structures and backfilling excavations after structure placement. In wetlands, this material will be stockpiled temporarily either on frozen ground or on wood matting and geotextile fiber. Permanent fill will not be required in wetlands to provide access.

Excess soils and backfill materials will be stockpiled in upland locations using appropriate erosion control measures as described in the most recent WDNR BMPs. See Section 2.5.1.4 for additional information.

#### **2.5.5 Re-vegetation**

The need for and approach to site restoration and re-vegetation will be based on the degree of disturbance caused by construction activities and the ecological setting of each site and will need to reflect and satisfy the requirements of the property owner. If construction can be accomplished without creating appreciable soil disturbance, restoration may not require re-vegetation efforts. Restoration activities will be implemented following the completion of construction activities. These activities will begin as soon as practical and as allowed by seasonal conditions.

##### **2.5.5.1 Re-vegetation & Site Restoration Plan & Schedule**

A restoration plan for disturbed sites will be developed based on the level of ground disturbance and the ecological setting. For example, if construction results in disturbance of a turf-grass sod area, the type of seed mix used for re-vegetation would be

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different than if the disturbance occurred in a wet meadow community. Re-vegetation in disturbed areas may be facilitated by native seed banks. In cases where there is no sign of re-growth of pre-existing vegetation species in the first month of the subsequent growing season, an assessment will be made and if necessary, an appropriate seed will be brought in and properly applied. ATC will monitor the sites that were seeded to ensure growth occurs.

### **2.5.5.2 Post-Construction Monitoring Plans**

#### **2.5.5.2.1 Post project monitoring plans (generally 5 years post project)**

Site restoration will be completed as described in Section 2.5.5. Restoration will be dependent on post construction site conditions and landowner concerns. A post-construction monitoring plan will be developed once construction is complete and an assessment of environmental impacts has been conducted. The monitoring plan will focus on the following: wetlands, waterway crossings, and areas where special site specific erosion controls were implemented. Most areas will be monitored until 70% revegetation has occurred.

#### **2.5.5.2.2 Operation phase monitoring plan (include invasive species management and post project corrections)**

Wetland delineation and habitat characterization have been conducted to identify large populations of invasive species along both Alternate 1 and Alternate 2 routes. Narrow leaf cattail (*Typha angustifolia*) and common reed grass (*Phragmites australis*) are prevalent throughout many of the wetlands on both Alternate Route 1 and Alternate Route 2. Common buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera* sp), and multi-flora rose (*Rosa multiflora*) mildly infest several upland areas along each route. Appropriate measures, as described in Section 2.5.4.2, will be implemented if it is determined that construction activities may potentially impact the spread of invasive species. A post construction assessment of these areas will be conducted.

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### 2.5.6 Erosion Control Plan (sites greater than 1 acre)

The proposed transmission line and Pleasant Prairie Switchyard are subject to WDNR requirements for construction site erosion control. The WDNR permit requirements for construction site erosion control and long-term stormwater management are specified in *Wis. Adm. Code* ch. NR 216. Under NR 216, permits are required for construction sites that disturb greater than 1 acre of land, which the proposed transmission line will exceed.

NR 216 authorizes WDNR to issue a General Wisconsin Discharge Elimination System (WPDES) Permit, after review of a Notice of Intent submittal, except where the Department determines that stormwater runoff is a significant source of pollution, where previously issued general permit conditions have not been complied with, where technology changes have occurred, or where specific effluent limitations apply. None of these exceptions apply to the proposed transmission line; therefore, the Notice of Intent submittal is expected to result in issuance of a General WPDES Permit for the project.

Performance standards for stormwater discharges authorized under NR 216 are specified in NR 151. Additionally, WDNR has developed guidance criteria for design of erosion control measures to meet these standards, also known as Technical Standards or Conservation Practice Standards.

NR 151 specifies that erosion control plans include:

*Best Management Practices that, by design, achieve, to the maximum extent practicable, a reduction of 80% of the sediment load carried in runoff, on an average annual basis, as compared with no sediment or erosion controls, until the construction site has undergone final stabilization. No person shall be required to exceed 80% sediment reduction to meet the requirements of this paragraph. Erosion and sediment control BMPs may be used alone or in combination to meet the requirements of this paragraph. Credit toward meeting the sediment reduction shall be given for limiting the duration or area or both of land disturbing construction activity, or other appropriate mechanism. (NR 151.11(6) (a))*

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This standard indicates that all site erosion control plans, regardless of disturbance area or erosion potential of the site, need to design for 80% reduction in sediment load. Discussions with WDNR staff on previous transmission line projects indicate that the intent of the criterion is to encourage temporary and permanent restoration, as soon as possible, after disturbance and to focus on more robust perimeter controls for larger sites. The intent behind this approach is recognizing that the primary focus in erosion control is preventing total sediment loss from a given area rather than a percentage reduction from a given area. Establishing a performance objective that meets this intent involves setting a maximum acceptable soil loss rate for the entire project.

The NR151 criterion stipulates that erosion from any part of a construction site cannot exceed 7.5 tons/acre/year. This standard was developed based on comparisons of loss rates from controlled vs. uncontrolled construction sites. Use of a maximum sediment loss rate standard instead of a percentage reduction standard allows for:

- Development of erosion control practices, and groups of several BMPs in series, that achieve the numeric loss rates;
- Use of data on specific soil types, slopes, and land cover in developing BMP plans;
- Analysis of the benefit of reducing the duration of exposure of unstabilized soil during the construction program; and
- More robust erosion control methods are required in areas of high erosion potential (compared to a typical construction site) based on the absolute threshold criterion than would be required for the percentage reduction threshold.

### **Erosion Control Plan Approach**

Once a transmission line route has been selected, ATC will finalize the Erosion Control Plan. For most of the transmission line corridor, the erosion control plan will consist of decision flow charts that are prepared to specify the location and type(s) of BMPs that can be utilized to meet the maximum soil loss standard outlined above. The decision flow charts will be assembled based on construction activity, site conditions (soils, slopes, etc.), time of year, and nature and length of disturbance. To aid in appropriate decisions in the field, the Erosion Control Plan will include base maps with

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necessary data such as contours, slopes, soils, natural resource features, and construction information that can be used to select the required BMP or set of BMPs.

### **2.5.6.1 Disturbed Area Protection Methods and Materials (include the following items where applicable)**

Best Management Practices and erosion control methods will vary depending on the construction activity, time of year, and site soil and slope conditions at the time of construction. Examples of BMPs that will be instituted for this project include:

#### **2.5.6.1.1 Soil and slope stabilization**

Vegetative cover will be maintained during construction to the maximum extent practicable.

#### **2.5.6.1.2 Seeding and mulching**

ATC will seed, mulch, and/or apply polymer to stabilize areas disturbed by construction activities.

#### **2.5.6.1.3 Matting, tracking pads, silt fences stockpile locations**

Low ground pressure equipment, ice roads, construction matting, or other applicable methods will be used, as necessary, to support heavy construction equipment in unstable areas.

Tracking pads will be installed at strategic access points to reduce offsite migration of sediment. Silt fence, silt sock, or similar perimeter controls will be installed, as necessary, to prevent migration of sediment to sensitive resource areas or offsite.

#### **2.5.6.1.4 Dewatering-related erosion control**

Perimeter sediment control practices such as vegetated buffers, silt fence, or silt sock will be implemented as necessary to ensure that silt generated from dewatering

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activities is contained and prevented from migrating into sensitive resource areas or offsite.

### **2.5.6.1.5 Channel protection**

Channel or gully erosion will be prevented using stone check dams or temporary ditch checks, as necessary.

### **2.5.6.1.6 Any other appropriate erosion control measures**

ATC will treat water recovered during dewatering operations via on-site filtration, on-site infiltration, or off-site disposal

### **2.5.6.1.7 Erosion control methods details and drawings**

Erosion control detail drawings will be included with the Erosion Control Plan.

Other BMPs will be utilized as conditions warrant. Best Management Practices will be implemented in accordance with ATC's typical construction practices and WDNR Technical Standards for Construction Site Erosion and Sediment Control. When applicable, only materials identified on the Wisconsin Department of Transportation's Product Acceptability List will be used for implementation of the Erosion Control Plan.

### **2.5.6.2 Erosion Control Measure Site Plan (including a site plan view and typical drawing with the following information)**

Site maps showing items identified as Sub-Sections 2.5.6.2.1 through 2.5.6.2.10 of the transmission line route along with construction information, natural resource features, site physical features and erosion control information, will be prepared and included in the Erosion Control Plan once a route is ordered.

#### **2.5.6.2.1 Construction site boundary**

#### **2.5.6.2.2 Location of erosion control measures**

#### **2.5.6.2.3 Location of stockpiled soil**

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### **2.5.6.2.4 Vehicle and equipment access sites**

### **2.5.6.2.5 Areas of disturbance**

### **2.5.6.2.6 Drainage area configuration**

### **2.5.6.2.7 Surface water diversion measures**

### **2.5.6.2.8 Topography**

### **2.5.6.2.9 Existing floodplains and wetlands**

### **2.5.6.2.10 Location of trees and unique vegetation**

### **2.5.6.3 Sequence of Erosion Control Measures that will occur (i.e. placed, relocated and replaced) during all phase of constructions including:**

Anticipated sequencing for the transmission line construction along with minimum construction-time erosion control practice description includes:

- Surveying and Staking of ROW – These activities are not considered to be land disturbing activities; thus erosion control measures are not required.
- Development of ROW Access – Silt fence, vehicle tracking pads, and other applicable erosion control measures will be installed as ROW access is gained. Disturbance of the access path may be intermittent. In some cases, the anticipated time interval between disturbance-causing activities may be more than one month, and it is not feasible to complete permanent restoration. In these areas, an assessment will be made and if necessary, temporary erosion control measures (erosion control mats, seeding or mulching) will be placed on the access path. Installation of temporary erosion control measures will be weather dependent.
- Temporary Staging and Materials Storage Areas – Staging and storage areas which are constructed and result in ground disturbance will have perimeter sediment controls placed on the down slope side of the site. If access to the storage area is off a permanent road, a vehicle-tracking

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pad will be placed at the intersection, if field conditions require.

- Cleanup and Restoration of ROW – Cleanup and permanent restoration will occur as described below.

Tree clearing will be necessary within the proposed ROW. Tree debris will be either hauled off site or ground into wood chips and spread within the ROW, in accordance with land owner requests. Wood chips will not be intentionally spread or stockpiled within wetlands, though some incidental woody debris may fall and be left in wetland areas. Disposal of logs, branches and other vegetation shall be done in a manner that does not disrupt drainage patterns or stream flows and is otherwise acceptable to ATC and the property owner, consistent with ATC Vegetation Management specifications.

Restoration of the ROW following tree clearing, construction, and construction access will be accomplished through seeding, mulching, matting and repair of any unintentional rutting. Disturbed areas will not be considered restored until 70% or greater cover is achieved following restoration efforts.

### **2.5.6.4 Off-site Diversion Methods**

It is not anticipated that off-site diversion methods will be used as a construction-time erosion control practice for the proposed transmission line or Pleasant Prairie Switchyard modifications. Should the need arise, any construction site diversions will utilize BMPs based on WDNR technical standards for construction site erosion and sediment control.

### **2.5.6.5 Inspection and Maintenance Provisions including:**

To comply with applicable regulations during active construction, qualified ATC staff or representatives will inspect erosion and sediment control practices once per week and within 24 hours following a rainfall of 0.5 inches or more in accordance with *Wis. Adm. Code* ch. NR 216 and the WPDES general permit conditions. Written documentation of the inspection will be maintained by the ATC's Environmental Monitor and/or Construction Coordinator and will describe any corrective measures taken, if applicable. All corrective action will be taken

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within 24 hours of inspection unless soil conditions are such that taking the corrective action will cause excessive erosion, soil disturbance, or environmental impact. The decision on the timing of the corrective action will be made by the qualified ATC staff or its representatives with documentation provided to the appropriate agencies.

### **2.5.6.5.1 Regular inspection of all erosion control efforts**

#### **2.5.6.5.1.1 Who will perform inspections**

Qualified ATC staff, environmental monitors, and construction contractor staff will perform regular inspections.

#### **2.5.6.5.1.2 When will inspections occur**

To comply with State regulations, during active construction qualified ATC staff or representatives will inspect erosion and sediment control practices a minimum of once per week.

#### **2.5.6.5.1.3 Any special circumstances initiating an inspection**

ATC staff or representatives will also inspect erosion and sediment control practices within 24 hours following a rainfall of 0.5 inches or more in accordance with *Wis. Adm. Code* ch. NR 216 and the WPDES General Permit Conditions.

### **2.5.6.5.2 Regular maintenance of all erosion control efforts**

#### **2.5.6.5.2.1 Who is responsible for maintenance**

The construction contractor and/or sub-contractors will be responsible for maintenance of all BMPs installed.

#### **2.5.6.5.2.2 Corrective action plan if site is not maintained according to provisions**

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Written documentation of the inspection will be maintained by the ATC's Environmental Monitor and/or Construction Coordinator and will describe any corrective measures taken, if applicable. All corrective action will be taken within 24 hours of inspection unless soil conditions are such that taking the corrective action will cause excessive erosion, soil disturbance, or environmental impact. The decision for the timing of the corrective action will be made by the qualified ATC staff or its representatives with documentation provided to the appropriate agencies.

### **2.5.7 Materials Management Plan**

A materials management plan under *Wis. Stat.* ch. 30 and *Wis. Adm. Code* ch. NR 216 will be required for this project. However, a detailed materials management plan cannot be prepared until a route is chosen and final design of the project is complete. The following is a general summary of ATC's Best Management Practices. The following discussion addresses the applicable portions of Sections 2.5.7.1 through 2.5.7.4.

#### **2.5.7.1 Access Point Locations**

The Access Plan Map is located in Appendix A, Figure 7.

Access to the transmission line ROW will be from public roads and will follow the existing utility ROW or negotiated access from private property owners.

ATC and its contractor will strive to arrange for alternate access with landowners, such as commercial areas, driveways and parking lots to avoid impacts to sensitive areas. See Section 2.4.11 for additional information.

#### **2.5.7.2 Haul Routes**

Materials hauled to and from the construction locations will utilize public roads or the ROW, and/or arranged access locations where roadways are not present. Access will be managed as described in Section 2.4.11.

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#### **2.5.7.3 Stockpile Areas**

Temporary stockpiles of excavated soils and woody debris resulting from ROW clearing and construction will be required throughout the course of construction. While specific locations have not been verified, it is anticipated that minor soil piles may be required adjacent to excavations for the new transmission line structures, within the switchyard area, and within the laydown yard. Any stockpiles will be placed in upland locations, and prevented from entering any wetlands or waterways by the use of proper erosion control methods including, but not limited to, silt fence, silt sock, or wattles.

#### **2.5.7.4 Equipment Staging Areas**

Construction materials, transmission line structures, cables, equipment and vehicles, and related materials will be stored on the ROW and at a temporary staging area or laydown yard. One construction laydown yard is anticipated to be required throughout construction for the storage and staging of construction equipment and materials. Based on the construction requirements of the Project, proximity to work areas, landowner impacts and the criteria discussed above, ATC has identified a potential site that can be utilized as a laydown yard for the Project. A site map of this area is provided in Appendix A, Figure 9.

A review of wetlands, waterways, natural features, grading and clearing requirements, threatened and endangered resources, and cultural or archaeological resources at the proposed laydown yard area was conducted. No additional cultural resources or threatened and endangered resources will be impacted by utilizing the site. The proposed laydown yard site is approximately 10 acres and is comprised of an inactive undeveloped upland industrial site at the PLP facility. The site is flat with minimal vegetation and has areas of existing hard surfaces. The site was selected to minimize the amount of disturbance and preparation required to provide suitable surfaces for temporary storage and staging of construction materials and equipment, as well as access to those materials. Site grading will either not be necessary or will be minimal. Appropriate erosion

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control measures will be implemented to prevent off-site impacts as necessary.

If it becomes necessary for ATC or its contractor to secure additional areas near the Project to temporarily store construction materials, ATC will follow a similar selection process. In accordance with *Wis. Adm. Code* § PSC 112.073, ATC will notify the PSCW of those locations and demonstrate that the use of those laydown areas will not affect any threatened or endangered species, historic resources, wetlands, waterways or other sensitive resources.

ATC will require all contractors to have in place a spill control and prevention plan that addresses both the contractor's equipment and construction activities.

### **2.5.7.5 Field Screening Protocol for Contaminant Testing**

If contaminated materials are encountered, ATC will develop a specific contaminated materials management plan, which will list and describe what contaminants are present and what measures will be taken including:

- Methods of isolating the contaminated materials;
- Methods of analyzing the contaminated materials;
- Where the materials will be tested;
- Methods of removing the contaminated materials from the site; and
- Treatment and disposal of the contaminated material.

### **2.5.7.6 Contaminated Materials**

If contaminated soil is encountered during excavation activities, appropriate measures will be taken to properly dispose of the contaminated materials. Based on a review of the WDNR's Remediation and Redevelopment Sites Map, there are nine (9) remediation sites documented at the PLP site. No additional sites are located within or adjacent to the proposed routes although, Alternate Route 1 does cross a closed City of Kenosha landfill site. Thus, there is risk of encountering contaminated soils during project construction. Consistent with ATC's waste management procedures, analytical testing will be conducted in

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advance of construction to determine proper disposal of these materials. Preliminary discussions with the WDNR Solid Waste program indicate construction of the structures on this landfill will require an "Exemption to Construct on a Historic Fill Site" from WDNR.

The potential also exists that Structure 1423, which will be removed as part of this project, may have been painted with coatings containing lead. ATC has found that soils below similar structures may contain lead contamination. ATC, in consultation with the WDNR's Remediation and Redevelopment program staff, has developed a lead remediation process including sampling protocols and materials handling procedures to ensure that lead contamination is identified and addressed in conformance with WDNR regulations. ATC intends to implement this process for this project should initial tests of the structure coating indicate lead content.

### **2.5.7.7 Excavation Methods**

The discussion below addresses the applicable portions of Sections 2.5.7.7 through 2.5.7.11.

Materials will be excavated at structure sites located in upland and wetland locations. No excavation will be completed in stream channels. The equipment utilized may include a combination of track-mount auger diggers, hydro-excavating trucks, backhoes, trenchers, concrete trucks, and tire-mount cranes. Structure/foundation installation will involve using auger equipment to excavate a circular hole of appropriate diameter and depth into on-site soils. Upland excavation material will be temporarily stockpiled adjacent to the excavation until the structure or equipment is installed. Upon completing the installations, and depending on the results of soil tests, the excavated materials will either be reused on site for backfill or thin spreading if clean, or hauled to landfill if contaminated. Wetland excavated material will be temporarily contained until it can be backfilled in the transmission structure location, evenly spread in an upland location, or hauled off-site for disposal.

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If necessary, the site will be stabilized by seeding and mulching. Erosion control measures will be applied as described in Section 2.5.6.1.

### **2.5.7.8 Method of Dewatering Excavated Materials**

Excavated materials that contain free water will be stockpiled and contained on-site using silt fence or other materials capable of controlling runoff from the work area. Upon dewatering the soils, the materials will be disposed of as described in Section 2.5.7.7.

### **2.5.7.9 Estimated Volume of In-channel and Upland Excavated Materials**

Alternate Route 1 proposes excavations for twenty-five (25) reinforced concrete structures which are estimated to generate approximately 1817 cubic yards of material. Alternate Route 2 proposes excavations for thirty (30) reinforced concrete structures and is estimated to generate approximately 2181 cubic yards of material. Work at the Pleasant Prairie Switchyard associated with the connection of the proposed transmission line is estimated to generate approximately 310 cubic yards of material. No excavation is anticipated to be required within any channels. The excavation quantities may vary from the estimated quantities based on the final foundation designs and the contractor excavation methods.

### **2.5.7.10 Estimated Volume and Location of Re-used In-channel and Upland Materials**

Specific quantities of excavated material to be re-used cannot be provided at this time. Upland excavation material will be temporarily stockpiled adjacent to the excavation until the structure or equipment is installed. Upon completing the installations, and depending on the results of soil tests, the excavated materials will either be reused on site for grading activities if clean, or hauled to landfill if contaminated. Wetland excavated material will be temporarily contained until it can be backfilled in the transmission structure location, evenly spread in an upland location, or hauled off-site for disposal. Disturbed soils will be re-seeded and/or mulched at the earliest suitable

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opportunity, if necessary. If necessary, due to location or storage duration, temporary piles of excavated material will be surrounded with silt fence or other erosion control devices.

### **2.5.7.11 Off-site Disposal Plans for Contaminated & Non-contaminated Materials**

As necessary, ATC will arrange for off-site disposal of contaminated or uncontaminated materials at an approved location. Upon determination of the presence of contaminated materials, a plan for the transportation and disposal of contaminated materials will be developed. No soils will be disposed of within wetland areas.

### **2.5.8 Dewatering Plan**

At this time, the location and amount of dewatering activities are unknown. Geotechnical information gathered upon final route selection, will allow American Transmission Company to make assumptions regarding the necessity to dewater at construction locations. If dewatering is necessary, it will be completed as described below and will comply with *Wis. Adm. Code* § NR 216. The following is a general summary of ATC's dewatering practices, and addresses the applicable portions of Sections 2.5.8.1 through 2.5.8.8.

The presence of groundwater at or near the ground surface can impact the construction procedures used when boring holes for transmission structures. If groundwater flow into an excavation results in the excavation becoming unstable, it is often necessary to support the walls of the excavation and/or dewater the site. Depending on site conditions and permit requirements, the extracted groundwater is generally discharged to an upland area where it is allowed to re-infiltrate, or to the local storm or sanitary sewer system. Extracted groundwater may also be discharged to a nearby water body if there is no indication of contamination and sediments, and it is free of fines. Water which may contain solids from the construction process is most often pumped out of the excavation and trucked either to a treatment facility or to an upland site where it can be allowed to settle and re-infiltrate.

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### **2.5.8.1 Dewatering/Diversion of Flow**

At this time, it is not known if or where dewatering activities may be necessary. If dewatering is necessary, it will be conducted in accordance with *Wis. Stat. § 283.33, Wis. Adm. Code ch. NR 216* and local storm and sewer discharge permit requirements.

No flow diversion activities are anticipated for this Project.

### **2.5.8.2 Downstream Impact Minimization (during high flow conditions)**

This section is not applicable to this Joint Application as no downstream impacts are anticipated during high flow conditions

### **2.5.8.3 Analysis of Possible System Overload Scenarios**

The streams associated with this project are small with intermittent flow. In addition, there are no planned structures in proximity to streams. Therefore, stream overload scenarios do not apply.

### **2.5.8.4 Impacts of System Overload on Construction Activities and Water Quality (List and describe)**

It is not anticipated that run-off from an overloaded system will impact construction activities and therefore, impacts to water quality do not apply.

### **2.5.8.5 Water Discharge Locations (provide the following)**

If dewatering is necessary, ATC will comply with the terms and conditions of the WPDES Storm Water Discharge Permit (*Wis. Adm. Code ch. NR 283*) as shown in Appendix E, Exhibit 1.

### **2.5.8.6 Back-up System (if a back-up system becomes necessary, indicate :)**

This section is not applicable to this Joint Application as there is no anticipated need for stormwater management back-up systems due to the limited amount of dewatering anticipated for this Project.

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### **2.5.8.7 High Flow Plan (when flooding is likely to occur, list and describe the following:)**

This section is not applicable to this Joint Application as there is no anticipated need for a high flow plan due to the limited amount of dewatering anticipated for this Project.

### **2.5.8.8 Contaminated Water (list and describe what measures will be taken if contaminated water is found on-site including:**

No contaminated water is anticipated to be present at excavation locations. If necessary, ATC or its contractor will develop a specific contaminated water management plan that will list and describe what contaminants are present and what measures will be taken including:

- Methods of isolating the contaminated water;
- Methods of analyzing the contaminated water;
- Where the water will be tested;
- Methods of removing the contaminated water from the site; and
- Treatment and disposal of the contaminated water.

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## **2.6 SUBSTATION INFORMATION**

All substation modifications and construction activity in the state of Wisconsin will be conducted within ATC or local utility property lines.

### **2.6.1 Substation Location, Dimensions & Layout**

General Arrangement drawings are provided for the Pleasant Prairie Switchyard and the Zion Energy Center Substation showing the existing and new facilities in Appendix B, Figures 7 and 13, respectively.

### **2.6.2 Size (acres) and Orientation**

No substation expansion is proposed as part of this Project.

### **2.6.3 Grading and Landscaping**

The grading plan for the PLP Switchyard was included in the revised Appendix D, Exhibit 7 of Docket 137-CE-163.

### **2.6.4 Ownership and Topography Maps**

PLP is owned by Wisconsin Electric. ZEC is owned by Calpine. Topographical maps are located in Appendix B, Figures 4 and 2, respectively.

### **2.6.5 Transmission Lines and Structures**

At the PLP Switchyard, a new terminal on an existing breaker-and-a-half bus position will be installed to terminate the proposed new 345 kV line, PLPL41. New installation work within the yard will include: a dead-end structure, a gas circuit breaker, line & bus voltage CCVTs, disconnect switches, and the installation of new protection relays for the line inside the station's existing control house.

At the ComEd ZEC Switchyard, a new terminal on an existing ring bus position will be installed to terminate the proposed new 345 kV line, PLPL41. New installation work within the existing yard will include: a dead end structure, a gas circuit breaker, free-standing

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CTs, bus voltage CCVTs, disconnect switches, and the installation of new protection relays for the line inside the station's existing control house.

### **2.6.6 Access Roads**

There will be no newly-created access roads. Access will be in accordance with the Environmental Features and Access Plan located in Appendix A, Figure 7.

### **2.6.7 Construction Procedures including erosion control techniques (see section 2.56)**

### **2.6.8 Environmental Information including:**

#### **2.6.8.1 Land Use and Zoning**

##### **2.6.8.1.1 Identify current land use at and surrounding the substation site**

The property is currently used for an electrical switchyard. PLP Switchyard is owned by Wisconsin Electric Power Company.

##### **2.6.8.1.2 Identify the existing zoning for the proposed expansion or new substation (include zoning within at least ½ mile radius of the project site)**

No switchyard or substation expansion is proposed as part of this Project.

#### **2.6.8.2 Agricultural Impacts**

The proposed construction activities at the PLP Switchyard will not impact agricultural lands.

#### **2.6.8.3 Forestry Impacts**

The proposed construction activities at the PLP Switchyard will not impact forestry lands.

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### **2.6.8.4 Endangered/Threatened/Special Concern Species**

Endangered, Threatened and Special Concern plants and animals, or valuable natural communities, will not be impacted by the proposed construction activities at the PLP Switchyard (See Section 2.4.8).

### **2.6.8.5 Archaeological and Historical Resources**

Please refer to Appendix K, Exhibit 1 for information on Archaeological and Historic Resources in the Pleasant Prairie Switchyard area.

### **2.6.8.6 Affected Waterways (identify which waterways are WDNR classified as Outstanding and Exceptional Resource Waters)**

Waterways will not be impacted by the proposed construction activities associated with the connection of the proposed transmission line at the Pleasant Prairie Switchyard.

### **2.6.8.7 Wetlands Affected by Substation Construction (if applicable then provide)**

Wetlands will not be impacted by the proposed construction activities associated with the connection of the proposed transmission line at the Pleasant Prairie Switchyard.

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### **2.7 EMF INFORMATION**

A report has been prepared documenting magnetic field calculations performed for the proposed PLPL41 transmission line and magnetic field strength measurements have been taken at the PLP Switchyard following the guidance in the Commission's "Information Requirements for Applications to Construct Electric Transmission Lines and Substations," (Part 2.00), Version 18, using the AC/DC Line and EMF Workstation 2005 program developed by the Electric Power Research Institute (EPRI). The report, as summarized below is contained in Appendix D, Exhibit 2. All exhibits, figures and tables referenced in Sections 2.7.1 and 2.7.2 below are contained in the report.

#### **2.7.1 Transmission Line EMF**

Magnetic field levels for the transmission line facilities (1) at system peak and (2) under normal (defined as 80% of system peak), intact system conditions are provided in the report contained in Appendix D for the planned in-service year 2016 and 5 years following 2016. Calculations were performed for each line Segment on the route, using the height of the lowest conductor above ground at mid-span. Magnetic field calculations for existing transmission line configurations that will be altered by the proposed project are also provided in Appendix D, Tables 1 through 4 and Appendix D, Figures 1 through 4 for the year 2011.

The magnetic field levels listed in the tables contained in the report are the root mean square (RMS) resultant level at one meter above ground. The conductor phase arrangement and phase angles, and distribution facility arrangement are provided in the figures included with the report. The transmission line phase arrangements were chosen to minimize magnetic field levels for the single-circuit configuration.

##### **2.7.1.1 Identify existing electric distribution facilities and distribution lines that can be potentially underbuilt on the transmission line**

This section is not applicable to the Project.

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### **2.7.1.2 New transmission lines detailed EMF profiles (for each structure type under consideration)**

See Appendix D, Figures 1 – 10.

### **2.7.1.3 Rebuilt or reconductored existing transmission lines or where the proposed line will be double-circuited with an existing line detailed EMF profiles (provide EMF profile of existing line (as described in section 2.7.1.2) and EMF profile for the proposed project design)**

This section is not applicable to the Project.

### **2.7.1.4 Provide EMF estimates (for existing and proposed project design) including the following information (see Table 6):**

#### **2.7.1.4.1 Provide EMF estimates and current flow (amps) for anticipated normal load and peak load (Normal load is 80% of peak load-system normal. Peak load is 100% peak load-system normal)**

Appendix D, Figures 1 through 10 includes current flow estimates for normal and peak load.

#### **2.7.1.4.2 Provide EMF estimates (resultant field only in milligauss (mG) for 1 meter above the ground and at 0 feet (centerline at mid-span), 25 feet, 50 feet, 100 feet, 150 feet, 200 feet, and 300 feet either side of the line (highest number only). Report EMF estimates in table format (See Table 5)**

Appendix D, Tables 2 through 7 show EMF estimates in milligauss at 1 meter above the ground for the above distances.

#### **2.7.1.4.2.1 Provide EMF estimates for new line for first year of operation and at 10 years into the future. For existing line, provide EMF estimate using present day loading as described in 2.7.1.4.1 and 2.7.1.4.2.**

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See Tables 2 through 7 in Appendix D.

### **2.7.1.5 Provide all assumptions used in modeling EMF levels including:**

All information under this section is shown within the tables, figures, and page 3 of Exhibit 2, in Appendix D.

#### **2.7.1.5.1 Phase angles**

See Figures 1 through 10 in Appendix D.

#### **2.7.1.5.2 Pole design diagram including dimensions of pole arms and conductor locations Show conductor horizontal distance from pole and conductor distance from ground at structure.**

See Figures 1 through 10 in Appendix D.

#### **2.7.1.5.3 Height of lowest conductor(s) at mid-span**

See Figures 1 through 10 in Appendix D.

### **2.7.2 Existing Substations EMF levels**

Magnetic field measurements at the Pleasant Prairie Switchyard, as required by the Commission's guidelines, are documented in Appendix D, Figure 11.

#### **2.7.2.1 EMF readings at each corner and mid-way along each fence and also outward from the fence at 25 foot intervals out to 100 feet from the fence**

See Figure 11 in Appendix D.

#### **2.7.2.2 EMF readings at the fence where the overhead and underground line enter and leave the substation. (Only one reading at the fence is required).**

See Figure 11 in Appendix D.

#### **2.7.2.3 Substations Associated with New Generation project (requiring new transmission lines): Anticipated**

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### **changes in EMF levels and current flow on transmission line resulting at substations associated with a new generation project**

The EMF level information for the existing Pleasant Prairie Switchyard is located in Appendix D, Figure 11.

The ability to predict the redistribution of the transmission line loading for each existing line connected to the Pleasant Prairie Switchyard is not possible at this time. Therefore, the estimated EMF levels for these existing transmission lines in the Pleasant Prairie Switchyard are not provided.

### **2.7.3 New Power Plants**

This proposed project constructs a new network transmission line and is not in response to new generation.

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### 2.8 WDNR PERMITS AND APPROVALS

A WDNR Utility Permit is anticipated to be required for this project. Throughout this process of route evaluation and selection, ATC engaged with both WDNR and PSCW staff in the project pre-application/consultation process as described in *Wis. Stat.* § 30.025(1m). By participating in the consultation process, ATC was able to share information regarding the proposed project with both agencies, receive and incorporate feedback on both the initial route segments and the later defined routes from the PSCW and WDNR, and ensure that ATC's Utility Permit Application would contain all of the data identified as being required by PSCW and WDNR to review and permit the proposed project.

ATC submitted Part 1 of an application, as provided for in *Wis. Stat.* § 30.025(1b), (1e) and (1s), for all WDNR permits required for construction of the facilities proposed in this Joint Application. These permits include:

- Chapter 30 Permit to place temporary bridges in or adjacent to navigable waters, pursuant to *Wis. Stat.* § 30.123 and *Wis. Adm. Code* ch. 320;
- Wetland Water Quality Certification to discharge fill in wetlands, pursuant to *Wis. Stat.* § 28 1.36 and *Wis. Adm. Code* chs. NR 103 and 299;
- WPDES Storm Water Discharge Permit pursuant to *Wis. Stat.* ch. 283 and *Wis. Adm. Code* ch. NR 216;
- Incidental Take Authorization pursuant to *Wis. Stat.* ch. 29.604 *if the need for that permit is identified by WDNR*;
- Any other applicable permit which is required, if the need for that permit is identified by WDNR.

A copy of the WDNR Utility Permit Application, Part 1, and the corresponding cover letter are included in Appendix E, Exhibits 1 and 2. Detailed technical information supporting the application for permits is contained in this Technical Support Document and is being provided to the WDNR as Part 2 of ATC's Utility Permit Application by copy of this Joint Application to the Commission.

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### 2.8.1 Waterways and Wetlands

Temporary clear span bridge crossings will be required at navigable waterways as described in Section 2.4.12. The proposed locations are specified and enumerated in Appendix E, Exhibit 2, Table 2, and are shown on Appendix A, Figure 7. These crossings require approval by the WDNR under *Wis. Stat.* ch. 30. All waterways are less than 35 feet wide. With the exception of the minimum clearance standard, all the bridges are designed to meet the standards and conditions for temporary clear span bridge crossings as authorized by *Wis. Adm. Code* NR 320.04. Accordingly, American Transmission Company is requesting that WDNR waive the clearance standard for all bridge crossings as authorized by *Wis. Adm. Code* NR 320.04(3). Approximate waterway dimensions are detailed for each proposed bridge crossing location (where access was allowed) in Appendix E, Exhibit 2, Table 2, and photographs are provided in Appendix E, Exhibit 2 for those waterways observed in the field. A typical detail drawing for a temporary clear span bridge crossing is provided in Appendix E, Exhibit 2.

Structures are proposed to be placed in wetland areas as described in Section 2.4.13. Temporary fill for construction access is also proposed to be placed in wetland areas as described in Section 2.5.4.1. The proposed locations are specified and enumerated in Appendix E, Table 2, and the wetlands are shown on Appendix A, Figure 7. Placement of fill in wetlands will require approval under Section 404 of the Clean Water Act (CWA) from the USACE and water quality certification from the WDNR under Section 401 of the CWA.

### 2.8.2 Wetlands Practicable Alternatives Analysis including:

#### 2.8.2.1 Method of Factoring Wetlands into Transmission Line Corridor and Route Selection Process and also Substation Siting Process

During initial project planning, environmental and social impacts, along with engineering feasibility and cost, were evaluated along four different routes that could potentially be used to route a transmission line between the PLP Switchyard and the ZEC Substation. The segments that were eliminated following this initial evaluation included those:

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- in or near highly developed residential areas;
- in areas with already heavy transmission use; and
- with the potential for disruption to other land uses.

Following initial evaluation, two alternative routes were identified for further evaluation. Segments comprising these routes are detailed in Section 2.4. These alignments were chosen based on a number of factors including minimizing impacts to residences, wetlands, and the location of existing transportation and utility corridors.

### **2.8.2.2 Provide analysis for avoiding and minimizing transmission line wetland impacts through structure location and construction access. For substation siting provide analysis for avoiding and minimizing wetland impacts considering cost, technological constraints and logistical reasons why other sites are not practicable.**

Alternate Route 1 and Alternate Route 2 will avoid and minimize wetland impacts to the extent practicable. However, given the extent of wetlands in the project area and structure spanning requirements, wetland impacts cannot be completely avoided along either route. Based on standard design elements, transmission structures will typically span 700 to 800 feet. This distance is dependent upon several factors, including topography and ROW constraints.

The number of structures preliminarily determined to be placed in wetlands represents a worst-case estimate. Upon route approval, the final design will further attempt to minimize wetland impacts. For example, an effort will be made to move structures near a wetland edge to outside of the wetland. However, based on the number and extent of wetlands along each route, complete avoidance of wetlands is not likely.

Access through wetlands will also be minimized to the extent practicable. For example, if construction occurs during periods when the ground is not frozen or dry, wetlands occurring along roads will be accessed from the adjacent roads near the structure location, which will eliminate the need for heavy equipment to access through the entire length of the wetland.

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### **2.8.2.3 If wetland impacts cannot be avoided, describe the construction and restoration methods that are planned to minimize wetland impacts**

The use of heavy equipment in wetlands will be avoided whenever possible. No permanent fill placement is proposed for wetland access routes. When wetland access is required, disturbance to wetlands will be limited as much as possible. Examples of some disturbance limiting techniques include: timing wetland construction during dry or frozen conditions, construction of ice roads, and the use of low ground pressure equipment, and/or construction matting materials to help minimize soil and vegetation disturbances.

Upon completion of the transmission line, ATC will complete site restoration and re-vegetation consistent with the activities described in Section 2.5.5.

### **2.8.3 Storm Water Management Permit**

Based on the planned work, cumulative land disturbing activities associated with the Project will exceed one acre requiring authorization under *Wis. Adm. Code* ch. NR 216. The required application forms have been submitted in the WDNR Utility Permit Application, Part 1 and are located in Appendix E, Exhibit 2 of this Joint Application. Appropriate erosion control measures and BMPs as described in the Department's technical standards will be followed and maintained until final restoration and re-vegetation are complete.

### **2.8.4 Endangered/Threatened Species Analysis and Incidental Take Request for Authorization**

An evaluation of potential impacts to rare species is included in Appendix E, Exhibit 2, and is being submitted as a redacted document. The WNIH database review identified records of several endangered or threatened species near the project area. Protected species protocols and other protective measures will be implemented when possible to avoid impacts to endangered or threatened species and their habitats; thus, incidental take permits may not be necessary. The protective measures include identification and avoidance. However, if protective measures

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cannot be achieved, ATC will consult with WDNR to determine whether an Incidental Take Authorization is necessary.

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### **2.9 OTHER AGENCY CORRESPONDENCE**

#### **2.9.1 Copies of ATC Correspondence to Other State, Federal and Local Government Agencies**

ATC met with Commission staff on two occasions: Project Kickoff - November 18, 2010 and Project Pre-Certification Consultative Closeout August 19, 2011. Meeting minutes are located in Appendix G, Exhibits 5 and 6, respectively.

#### **2.9.2 Copies of Agency Responses including:**

ATC has received a response on August 19, 2011, from the WDNR to the Project Plan (Appendix G, Exhibit 1) submitted on July 20, 2011, which is located in Appendix G, Exhibit 2.

##### **2.9.2.1 Wisconsin Department of Transportation**

Kevin Lynch, ATC Real Estate Representative, contacted Gary Wolf, WisDOT Southeast Region Permitting on September 23, 2011 to discuss permits required for this Project. A record of this contact is located in Appendix G, Exhibit 4. ATC does not anticipate any difficulty in procuring permits to work in ROW or for placing 345 kV lines over STH 165 (104<sup>th</sup> Street).

##### **2.9.2.2 Department of Agriculture, Trade and Consumer Protection (Agricultural Impact Statement)**

Kevin Lynch, ATC Real Estate Representative, contacted Peter Nauth on 06/02/11 to discuss the need for an Agricultural Impact Statement. Mr. Nauth advised ATC that the notification to DATCP should take place after the PSCW issues the Certificate and Order for a final route. A record of this contact is located in Appendix G, Exhibit 3.

##### **2.9.2.3 Wisconsin Historical Society**

ATC does not have correspondence with the Wisconsin Historical Society. Archaeological and Historical Resource information

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(contained in Appendix K, Exhibit 2) is submitted to the PSCW. The PSCW's Historic Preservation Officer reviews the information and, if necessary, consults with the Historical Society. Section 2.4.9 contains additional information on Archeological and Historic resources potentially affected by the proposed project.

### 2.9.3 Agency Permits

Application for all WDNR permits, under the WDNR Utility Permit Application (Parts 1 and 2), is included in this Joint Application and has been concurrently submitted to the WDNR. For any given location, construction will not proceed until the applicable permit (WDNR, local, or federal) is received.

The necessity of seeking local approvals for utility construction projects is governed by *Wis. Stat.* §196.491(3)(i) and 196.491(4)(c).<sup>3</sup>

American Transmission Company works with all local units of government to assure that the representatives of those units of government affected by ATC's proposed construction projects are informed concerning ATC's proposed construction activities.

The public safety-related permits or authorizations that ATC applies for generally include road crossing permits, road weight limits, noise abatement ordinances (usually involving hours or times of construction), building permits (for such construction as control houses), and other similar public safety concerns for which permits or authorizations may be required by local ordinance.

Local ordinances also often address siting and location issues for the construction of utility facilities, or land use issues including recreational uses and aesthetics. These types of authorizations include conditional use permits or zoning permits or variances which often involve quasi-judicial proceedings and which involve the exercise of discretion on the part of the local unit of government on whether the authorization or permit may be granted. Since the

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<sup>3</sup> See *RURAL vs. PSC*, 239 Wis. 2d 660, 619 N.W. 2d 888 (2000). Section 196.491(4)(c) was added by 2003 Wisconsin Act 89, and provides to utility construction projects governed by *Wis. Stats.* § 196.49 the same treatment regarding local approvals that is provided by § 196.491(3)(i).

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Commission's statutory obligation is to address the siting of proposed utility facilities, and to address siting and route selection for new transmission lines, land use, recreational use and aesthetics, ATC does not apply for these types of permits or authorizations. However, ATC does supply the involved local governments with completed application forms, the necessary information required by the applicable ordinance or permitting authority as well as a sum of money equal to the fee that would be applicable, and requests that the local unit of government provide ATC with its comments or concerns regarding the siting and location of the proposed construction projects.

This Joint Application involves the following local units of government: Village of Pleasant Prairie. ATC has or will meet with representatives of this unit of government and, in addition to the filing requirements of *Wis. Stat.* §. 196.491, ATC will provide copies of this Joint Application to the affected unit of government and will make application for those permits identified following a review of the local ordinances that are public safety-related. ATC will provide the necessary information for those permits and authorizations that involve the siting, location, land use, recreational use, or aesthetics but will not formally apply for such authorizations in light of *Wis. Stat.* §196.491(3)(i) and 196.491(4)(c).

### **2.9.3.1 For CPCN applications and applications filed under the 196.491 (4)(c) 1m exemption<345 kV line on an existing transmission line ROW where the new centerline is within 60 feet of the existing transmission centerline).**

#### **2.9.3.1.1 Provide a list of all permits and/or ordinances that would apply to the proposed construction activities if the exemption did not apply.**

A conditional Use Permit would be required if ATC were applying for the exemption. A Village of Pleasant Prairie Erosion Control permit and Stipulated Shoreland Permits will also be required.

#### **2.9.3.1.2 Submit documentation of communications between the applicant and all political subdivisions crossed by the proposed project regarding these permits and/or ordinances and how the project will/or**

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### **will not be in compliance with theses local requirements**

Two meetings were held with Village of Pleasant Prairie officials on 02/16/11 and 05/18/11 regarding permits and/or ordinances affecting this Project. Notes from the meetings are located in Appendix F, Exhibit 1.

#### **2.9.3.2 List of Federal permits**

##### **2.9.3.2.1 Provide a list of local permits and/or ordinances that apply to the proposed construction activities and the status of those permits**

Activities affecting navigable waters require permits or approval from the USACE and the WDNR. The USACE requires a permit under Section 404 of the Clean Water Act to place fill into waters of the United States, which includes connected wetlands and tributaries to navigable waters of the United States. The Rivers and Harbors Act of 1899, which prohibits the obstruction or alteration of navigable waters, is also covered under the USACE permitting process.

Although impacts to wetlands will be avoided and minimized to the extent practicable, ATC is proposing to place permanent and temporary fill in wetlands along either route. The federal permits that might be obtained include:

<b>Federal Agencies</b>		
U.S. Army Corps of Engineers	Placement of fill into Waters of the U.S.	Section 404 Clean Water Act
	Archeological Review	Section 106 National Historic Preservation Act

#### **2.9.3.4 List of Other permits**

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The typical state permits and other organization permissions that might be obtained after the issuance of the Certificate of Public Convenience and Necessity and the Utility Permit are:

<b>State and Local Agencies</b>		
Department of Transportation	Road Crossing	Design Approval
	Construction adjacent to, within, or co-location with the ROW of State Highways & Roads	Utility Permit DT 1553
	Construction of Tall Structures Near Airports	<i>Wis. Stat.</i> ch. 114 - Aeronautics
	Oversize Loads or Excessive Weights on Highways	<i>Wis. Stat.</i> ch. 348 Vehicles – Size, Weight and Load; <i>Wis. Stat.</i> § 348.25-Vehicle Weight and or Load Permit
Wisconsin Historical Society	Site Preparation and Grading	Approval of Archeological Surveys ( <i>Wis. Stat.</i> § 44.40 and Section 106 of National Historic Preservation Act)
Kenosha County Highway Dept.	Work in ROW and Lines Over Roadway (CTH ML)	Construct, Operate, And Maintain Utilities Within Highway Row
Village of Pleasant Prairie	Work in ROW Building or other permit for permanent facilities in road ROW	Permit (305-256)

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### **2.10 PROPERTY OWNER INFORMATION**

#### **2.10.1 Separate Alphabetized Lists in UNF Format for each of the following groups below:**

ATC will continue to maintain communication with all public officials representing the affected property owners throughout the certification and construction phases of the application.

##### **2.10.1.1 Property Owners**

The mailing list of potentially affected private property owners is located in Appendix H, List 2.

##### **2.10.1.2 Public Property**

The mailing list of potentially affected public property owners is located in Appendix H, List 2.

##### **2.10.1.3 Clerks of Cities, Villages, Townships, Counties, Regional Planning Commissions**

The mailing list of municipal clerks and regional planning commissions; is located in Appendix H, List 1.

##### **2.10.1.4 State and Federal Agencies/ Local Media**

State and federal agencies with which ATC is or will interact as a result of this proposed project include: WDNR, USACE, and DATCP. The mailing list of state and federal agencies, local media outlets and public libraries is located in Appendix H, List 1.

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